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Edited by

E. Geddings, M.D.

Professor of Anatomy and Physiology in the University of Maryland, &c.

"Qui castis veterum observationibus jungunt recentiorum inventa, videtur habere optimas medicinae fundamenta." Van Swiet.

Vol. I.

Baltimore:
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PREFACE.

In entering upon our duties, it may be proper that we should explain the motives which have prompted us to bring forward a new medical periodical, while so many already exist devoted to the interests of medical science.

We have done so, because we were desirous of contributing our feeble mite towards the improvement of the profession; to incite its members to more diligent and careful investigation; and to encourage them to record the results of their experience.—Our predecessors in the same line, have been, and still are, ably and industriously employed in collecting and disseminating valuable facts and principles; in elevating the medical character of our country, and advancing the cause of improvement; but although they have achieved much, more still remains to be done:

We have come forward, not to oppose, but to assist them in the important cause which is engaging their efforts;—not as a rival envious of their fame; but as a fellow laborer emulous of their achievements, and anxious to co-operate with them in subserving the general interests of science. We have already announced in our Prospectus, that our object is to establish a journal which shall have nothing of a local character; but designed to subserve the general interests of the medical profession;—to collect together and dispense such information as is constantly growing out of the rapid advancement of professional knowledge.

With this view, it is not our intention to rely exclusively upon our own observations; but to endeavor to concentrate within our pages the rich stores of facts and principles derived from every part of our prosperous country, as well as from the numerous quarters of Europe. We do not head a party in medical politics, or present ourselves as the advocates of any sect. We court truth in whatever form she may present herself, and shall always be ready to give her votaries a warm and welcome reception. We have no sectional feelings to vindicate; no personal or selfish motives to gratify; nor petty animosities to indulge: but actuated by those pure and upright principles which
constitute the proper characteristics of the votary of science, our only ambition is to construct a work which shall not only be found useful at home, but which shall also be circulated and read abroad—a work devoted to the universal interests of medical science in every country.

To secure the attainment of these objects, we have invited the co-operation of our professional brethren in every part of the United States, and in evidence of the success of our appeal, and their willingness to assist us, we can with pleasure refer to the annexed list of contributors. Many others who have promised their assistance, still remain to be added, and from the cheering and favorable assurances which we have received from almost every quarter, we doubt not our ability to redeem the pledge held out in our prospectus.

We now repeat the invitation formerly extended to the members of the profession generally, to furnish us with the results of their experience, and to make our pages the vehicle for their communications. They may differ from us in opinion, but as free interchange of thought constitutes one of the most fruitful means of arriving at truth, they will find us not the less disposed to give publicity to their contributions, because they embrace principles at variance with our own. Besides such original communications as may be furnished by ourselves, or received from others, our journal will embrace a critical analysis of all new medical publications of merit, which may emanate either from the presses of this country or those of Europe; and to enable our readers to keep pace with the regular march of science, each number will contain a full and complete digest of intelligence, carefully selected from all the American and Foreign periodicals, Transactions and Memoirs of Foreign Academies and Societies, and all other sources that can be rendered available. Arrangements have been made, by which nearly all the Journals and Transactions of England, France, Germany, Italy, and other parts of continental Europe, and all new works of merit which may appear in those countries, will be regularly received. Those who patronise our exertions, may rely with confidence upon our fidelity in furnishing them with every thing of practical interest which can be collected from these various sources.

EDITORIAL NOTICES,

And acknowledgments to Correspondents.

The preparations necessary in getting up our first number, has delayed its publication a few days beyond the period designated. It will appear punctually in future.

A communication has been received from Thomas M. Logan, M.D. of Charleston, S. C. It will appear in our next number.

We return our thanks to several correspondents, who have promised us communications for our next, and beg that they may be forwarded as early as convenient.

Some Essays and Reviews prepared for our present number could not be inserted for want of room.

In consequence of the length of our original department in the present number, our Summary of Intelligence is shorter than was intended. It will be more copious in our next.

The following works have been received for notice and review.


The hand, its mechanism and vital endowments as evincing design. By Sir Charles Bell, K. G. H. F. R. S. L. &c. being one of the Bridgewater Treatises. 8vo. Lond. 1833. W. Pickering.


1

v.1
A memoir on the practicability of dividing the stricture in strangulated hernia on the outside of the sac, with cases and drawings. By C. A. Key, Sen. Surgeon to Guy's Hospital, and Lecturer on Surgery, &c. London, 1833.

An analysis of this valuable little work was prepared for our present number, but was omitted for want of room.


An invaluable digest of Surgical Science.


We had prepared a review of these three splendid works for our present number, but have been obliged, for want of room, to omit it.

A memoir on Staphylophathy, with cases, and a description of the instruments requisite for the operation. By Alexander Hosack, one of the Surgeons to the Marine Hospital, N. Y. N. York, 1833. (From the author.)

Observations on Cholera Asphyxia. By David M. Reese, M. D. of New York. (From the author.)
A Lecture delivered to the Medical Class of the University of Virginia, at
the conclusion of the course, and on the occasion of his leaving the institution. By ROBLEY DUNGLISON, M.D. Professor of Physiology, Pathology, Obstetrics, and Medical Jurisprudence, in the University of Virginia. Published by the Class, 1833. (From the author.)

This Valedictory Address contains much good sound advice affectionately con-
veyed.

A memoir on the Fossil Bones of the Mastodon and Tetracaulodon. By ISAAC HAYS, M.D. of Philadelphia. (From the author.)

A Manual of Practical Toxicology, condensed from Dr. Christison’s Treatise on Poisons, with notes and additions. By J.T. DUCATEL, M.D. Professor of Chemistry and Pharmacy in the University of Maryland, &c. 1 vol. 12mo: pp. 341. W. & J. Neal, Balt. 1833. (From the publishers.)

Interesting Galvanic Experiments. By JOHN R. W. DUNBAR, M.D. of Winchester, Va. (From the author.)

Observations on Cholera Asphyxia. By SAMUEL A. CARTWRIGHT, M.D. of Natchez. (From the author.)

An Essay on the Epidemics of the winters of 1813 and 1814, in Talbot and Queen Ann’s counties, in the state of Maryland. By ENNALLS MARTIN, M. B. &c. Balt. 1815. (From the author.)

Authors and publishers who may be desirous of having their works noticed, are requested to transmit us a copy as soon after publication as possible, when they will receive the earliest attention. Editors of American or Foreign Medical Journals, who may wish to exchange with us, will please forward their numbers, and ours shall be promptly sent to their direction. They may be either transmitted direct, or through any of our agents.

All communications for the Journal should be sent as early as possible after the publication of the preceding number. As the Editor has no participation in the business of publication, he requests that all communications and letters may be addressed exclusively to the publisher, WM. R. LUCAS, Market-street, Baltimore, for the Baltimore Medical and Surgical Journal. Letters must, in all instances, be post paid.
## CONTENTS.

### ORIGINAL COMMUNICATIONS.

<table>
<thead>
<tr>
<th>Art.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Observations on Fractures of the Thigh and Leg; with a description of an apparatus applicable to the treatment of such injuries. By N. R. Smith, M. D. Professor of Surgery in the University of Maryland</td>
<td>13</td>
</tr>
<tr>
<td>II.</td>
<td>Observations on several cases of doubtful Suicide or Homicide, recorded in history. By T. Romeyn Beck, M. D. Professor of the Theory and Practice of Physic in the University of the state of New York, and Lecturer on Medical Jurisprudence. Read before the Albany Institute, March, 1833.</td>
<td>54</td>
</tr>
<tr>
<td>III.</td>
<td>On poisoning with the preparations of Chrome. By J. T. Ducatel, M. D. Professor of Medical and Pharmaceutical Chemistry, in the University of Maryland</td>
<td>44</td>
</tr>
<tr>
<td>IV.</td>
<td>Physiologico-Pathological Observations on Follicular Gastro-enteritis. By E. Geddings, M. D. Professor of Anatomy and Physiology, in the University of Maryland</td>
<td>50</td>
</tr>
<tr>
<td>V.</td>
<td>Observations on Cholera Infantium. By Nathaniel Potter, M. D. Professor of Pathology and the Practice of Medicine, in the University of Maryland</td>
<td>104</td>
</tr>
<tr>
<td>VI.</td>
<td>Case of Aneurism of the Right Subclavian Artery, in which a ligature was applied to the Arteria Inominata. By Richard Wilmot Hall, M. D. Professor of Obstetrics and the diseases of women and children, in the University of Maryland.</td>
<td>125</td>
</tr>
</tbody>
</table>

### REVIEWS.

| VII. | Memoir of the Life and Medical Opinions of John Armstrong, M. D. formerly Physician to the Fever Institution of London; author of "Practical Illustrations of Typhus and Scarlet Fever," &c. to which is added an inquiry into the facts connected with those forms of fever attributed to malaria or marsh effluvium. By Francis Boot, M. D. Secretary of the Linnean Society, &c. in two volumes, vol. 1. London; Baldwin and Craddock, 1833, pp. 616 | 133  |
| VIII. | Sketches from the Case Book, to Illustrate the Influence of the Mind on the Body, with the treatment of some of the more important brain and nervous disturbances which arise from its influence. By R. Fletcher, Esq. Surgeon to the Gloucester General Hospital, and consulting surgeon to the Lunatic Asylum, near Gloucester. London, 1833, pp. 391 | 158  |
| IX.  | A Treatise on Inflammations; explaining their pathology, causes, consequences, and treatment, with their effects on the various textures of the body, being an extension of a "Dissertation on Inflammation of the Membranes," to which the Jacksonian prize, for the year 1826, was awarded by the Royal College of Surgeons, in London. By George Rogerson, Surgeon, of Liverpool, vol. 1, pp. 459. London, 1832 | 167  |
BIBLIOGRAPHICAL NOTICES.


XI. Transactions of the Medical Society of the state of New York, vol. 1, parts 1 & 2. Albany, 1832-3, to be continued annually - 202

XII. An Essay on the Structure and Functions of the Skin, with observations on the agency of atmospheric vicissitudes through the medium of the skin in the production of affections of the lungs, liver, stomach, bowels, &c. By Wm. Wood, M. D. and member of the Royal College of Surgeons, of London, &c. 8vo. pp. 172—1832 - - - 206

XIII. Illustrations of the elementary forms of disease. By Robert Carswell, M. D. Professor of Pathological Anatomy, in the University of London, &c. Fasciculi, 1, 2 - - - 208


XV. Memoire Sur la Traitement de la Maladie Scrophuleuse, par M. Baudelocque. Revue Medicale, January, 1863 - 209


XVII. A Manual of Practical Toxicology, condensed from Dr. Christopher's Treatise on Poisons, with notes and additions, by J. T. Ducatel, M.D. Professor of Chemistry and Pharmacy in the University of Maryland, &c. 1 vol 12mo. pp. 341 - - - - - 217

QUARTERLY SUMMARY OF INTELLIGENCE.

FOREIGN INTELLIGENCE.

ANATOMY.

1. The ad-orbital bone, by Geoffroy St. Hilaire - - - 224

2. Muscular structure of the Crystalline Lens, and Ciliary Zone. By Thomas Smith - - ib. 3. Structure of the Placenta.—Examination of the Hunterian preparations at the College of Surgeons. By Edward Stanley and Herbert Mayo - - - 227

PHYSIOLOGY.

4. Observations on the Blood, by Professor Muller, of Bonn. - 228

5. Case of extraordinary Congenital Bulimia - - - 229

PATHOLOGY.

6. Occlusion of the pulmonary veins by a tuberculous mass situated within the substance of the left auricle of the heart. By Dr. Townsend - - - 230

7. Double Uterus. By M. Moreau - - - - - 231

8. Bilocular Bladder. By M. Velpeau - - - - ib. 230
<table>
<thead>
<tr>
<th>CONTENTS.</th>
<th>xi</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Extra-uterine Ovarian Conception. By M. Gaussail</td>
<td>231</td>
</tr>
<tr>
<td>11. Transposition of the Viscera. By Wiliam Hardy</td>
<td>233</td>
</tr>
<tr>
<td>THERAPEUTICS.</td>
<td></td>
</tr>
<tr>
<td>13. Marchantia Hemispherica in Dropey. By Thomas Short</td>
<td>235</td>
</tr>
<tr>
<td>14. Case of Elephantiasis cured in seven days. By Dr. Graff</td>
<td>236</td>
</tr>
<tr>
<td>15. Prophylactic virtue of Belladonna, against Scarlatina. By Hillenkamp</td>
<td>236</td>
</tr>
<tr>
<td>16. Strangulated Hernia with perforation of the intestine, in which the latter returned into the cavity of the abdomen. By M. Velpeau</td>
<td>236</td>
</tr>
<tr>
<td>17. The treatment of Varicose veins by obliteration. By M. Davats</td>
<td>237</td>
</tr>
<tr>
<td>18. Extirpation of a degenerated Ovaria. By Dr. Erhardstein</td>
<td>ib.</td>
</tr>
<tr>
<td>SURGERY.</td>
<td></td>
</tr>
<tr>
<td>19. Employment of a decoction of Belladona, in a case of rigidity of the neck of the uterus. By Dr. Ricker</td>
<td>238</td>
</tr>
<tr>
<td>20. Absorption of the Placenta. By Professor Naegele</td>
<td>239</td>
</tr>
<tr>
<td>21. Hemorrhage of the uterus arrested by compression of the descending aorta. Dr. Lowenhard</td>
<td>239</td>
</tr>
<tr>
<td>MIDWIFERY.</td>
<td></td>
</tr>
<tr>
<td>22. New process for the reduction of Arsenic. By M. Bouthigny</td>
<td>organic liquids. By M. Dutrochet</td>
</tr>
<tr>
<td>The Endosmose power of certain Paste for opening issues. By M. Lassaigne</td>
<td>ib.</td>
</tr>
<tr>
<td>CHEMISTRY.</td>
<td></td>
</tr>
<tr>
<td>Case of Ivory Exostosis. By Richard Barnum, M. D. of North Carolina</td>
<td>Case in which a button was lodged in the Esophagus, eighty-two days. By do.</td>
</tr>
<tr>
<td>Two cases of Secondary Syphilis, treated with Fowler’s solution of Arsenic. By M. S. Baer, M. D. of Baltimore</td>
<td>Resignation of Professors Baker and McDowal, of the University of Maryland</td>
</tr>
<tr>
<td>Case of painful Subcutaneous Tumor. By do.</td>
<td>Appointment of Professor Robley Dungilson, to the chair of Mat. Med. Therap. Hygiene and</td>
</tr>
</tbody>
</table>
CONTENTS.

Med. Jurisprud. in the University of Maryland - 251
An Essay on Malignant Cholera. By B. M. Byrne, M.D. of Balt. 252
Memoir on the bones of the Mastodon and Tetracaulodon. By
Isaac Hays, M.D. of Philadelphia - 252
A Treatise on the principles and Practice of Surgery. By N. R.
Prize questions of the New York Smith, M.D. Professor of Surgery in the University of Mary-
state Medical Society, for 1833 48.
Art. I. Observations on Fractures of the Thigh and Leg; with a description of an Apparatus applicable to the treatment of such injuries.* By N. R. Smith, M. D. Professor of Surgery in the University of Maryland.

It is by no means my intention, in the following paper, to furnish a complete treatise on the subject of fractures of the inferior extremity. My readers are familiar with the principles and practice commonly received and taught in the elementary works. My desire is to call the attention of the practitioner to certain sources of embarrassment and difficulty with which experience has made me familiar, and which must have been encountered by all who have had occasion to treat the worst forms of these common injuries. During the last six years, I have served, on an average, during more than half of each year, as surgeon to the Baltimore Infirmary, and, in that capacity, or by the courtesy of my colleagues, have had the treatment of nearly all the cases of fracture which, during that period, have occurred in that establishment. In consequence of the employment of numerous laborers in the great public works which have been in progress in the vicinity of this city, and because the Infirmary is generally resorted to by such individuals, the records of this establishment shew a large proportion of such injuries, and those too generally of a very formidable character. I have learned, by painful and anxious experience, that the principles of surgery in relation to the mechanical treatment of fractures, are exceedingly deficient. I have often been astonished to ob-

* An apparatus which, in its construction, was an approximation to the one about to be represented, was described by me some time since; but that which I now use differs from it materially, and I have tested its utility so often, that I believe no further alterations to be necessary.
Smith on the Treatment of Fractures.

serve how little surgeons have availed themselves of the principles of mechanical philosophy in the treatment of the injuries of those organs, the functions of which, in the animal economy, are purely mechanical. I am persuaded that the treatment of fractures is decidedly the most defective department of surgery, and that which does least credit to the science and skill of our profession. I hope to demonstrate that there are certain mechanical principles of great importance in relation to fractures which have been wholly overlooked.

Whenever I have been foiled, in any respect, in the treatment of a difficult case of fracture, I have carefully endeavored to ascertain the source of the difficulty, and to detect the deficiency in the mechanism of the apparatus employed. Finding the suggestions of authors altogether insufficient for the exigencies which I have encountered, and sometimes absolutely erroneous, I have often been forced upon my own resources, and have exercised them without allowing myself to be too much trammled by customary usages.

1. The leading indication in the treatment of fractures of the lower extremity, appears to me to be, to furnish such mechanical support for the injured member as shall, in as great a degree as possible, act as a substitute for the bone which has suffered fracture. To do this, in regard to those indispensable offices which the bone performs when the body is at rest, is, in a great degree, practicable, as we shall presently see.

2. The next great desideratum is, to furnish such a support or bed for the member, as shall diffuse the pressure, which the weight of the limb occasions, equally over the whole inferior semi-circumference of the leg and thigh. This indication is but very imperfectly accomplished by any apparatus hitherto described.

3. Another not less important object should be, to render the two former indications consistent with a change of posture in the patient's body, and, as far as possible, with freedom of motion in all other parts, the apparatus being an appendage of the body rather than of the bed, and moving with it in all unavoidable motions.

4. It is not less important to place the member in that attitude which shall most perfectly relax the muscles that operate on the fragments of the broken bone.

5. The apparatus should be such as to allow the attitude of the member to be occasionally varied, without the necessity of taking away the supports of the fractured bone.
6. The supports of the limb should be such that, by the removal of some of its appendages, the surgeon, in compound fractures especially, may expose, examine the member, and, if necessary, renew dressings, without at all disturbing its posture or principal supports; in short, without allowing any motion of the fragments.

7. Permanent extension, for the purpose of counteracting the contraction of muscles, and obviating the imperfections of inadequate apparatus, is, in any efficient degree, absolutely impossible; and if all the indications named above be satisfactorily accomplished, is altogether unnecessary.

1. In regard to the first indication, I would observe, that to furnish any mechanical apparatus which shall qualify the member for its ordinary offices, is, of course, impossible. To place a leg or thigh in a state of perfectly motionless rest till the bone can unite, is equally so. There are certain involuntary and unavoidable movements of the limb which must always occur, and the object of the surgeon is to provide a support which, in relation to these, shall be a substitute for the injured portion of the skeleton. The portion of the injured member below the fracture may indeed be so firmly secured to an immovable fracture-box, or other support, as to be kept altogether at rest. But this is often the very source of a greater degree of displacement of the fragments than would otherwise occur, for it is utterly impossible that the body can be kept in one unvarying attitude, and as it changes its position, it carries with it the superior fragment, and thus changes its relations to the inferior, which cannot move.

It is impossible to fix the body in one unvarying posture; first, because the firmest matress on which the patient can endure to lie, will gradually yield, in some degree, to the incumbent weight of the body. Again; the body of a patient in bed is almost always, in effect, upon an inclined plane. Although the matress may be horizontal, the head and shoulders are in a greater or less degree elevated by bolsters and pillows. In all the unavoidable motions of the superior regions of the body, there is an effort to raise the head and chest. This necessarily occurs, for instance, in taking food and drink. Every physician is aware of the tendency which there is in typhus fever and other diseases of extreme muscular debility, for the patient to sink toward the foot of the bed. This is because the patient is then incapable of making those efforts, which under other circumstances he unconsciously does, to obviate this tendency.
In a fracture of the inferior extremity, all these movements of the body are perpetually operating upon the superior fragment of the broken bone, and when the position of the body changes, the limb below the fracture is so bound down by a cumbersome apparatus, that it cannot, in any degree, accommodate itself to this change of position. The evil in this respect, then, will be worse than if no apparatus were used; because, if the limb were unencumbered, it would, partially at least, obey the motions of the body. This it will do completely if an apparatus be so contrived that it shall facilitate the motions of the limb, and obey with it all the motions of the body, allowing the limb instantly to change its attitude, and correspond to the change in the posture of the body. In order to accomplish these indications, the apparatus which I employ is strictly an appendage of the body, rather than of the bed, and is a substitute for the injured portion of the skeleton. That it may enable the limb to obey all the necessary motions of the body with the most perfect facility, it is not only light and unattached to the bed, but it is slung up to the ceiling by a cord, and swings clear of the surface of the mattress. When then the patient's body slides toward the foot of the bed, the superior fragment is not jammed upon the immovable inferior one, (a fruitful source, as Mr. Amesbury has shown, of deformity and shortening of the limb,) but the limb instantly obeys the movements of the body and swings toward the foot of the bed, without allowing the least force to be exercised upon the fracture, for there is no point d'appui for it to act upon. To illustrate this, if a stick were hung up by a cord attached to its middle, so as to be perfectly movable, no one could break it by seizing one of its extremities with a single hand; but if it were fixed in a wall by one extremity, the slightest force would break it. Also if the stick were previously broken, and the fracture was repaired by splicing it, though not very strongly, at the place of injury, and it were suspended, it would bear to be moved in every direction, without exercising any strain on the supports at the place of injury, or producing any shuffling at the place where they are joined. But if one end were fixed, it would be exceedingly difficult so to repair the fracture, that the slightest touch on the end of the stick would not make it bend at that point.

When the limb is supported in the manner to which I have alluded, it will accommodate its position in the same way to all lateral, or even slight rotary, movements of the body. Thus will not only all the effect of the unavoidable movements of
the body upon the seat of injury be taken away, but all unequal strain of the apparatus, or forcible pressure of any part of it, be prevented. To keep the fragments steady in relation to each other, tight constriction by bandages and the close irritating pressure of parts of the apparatus is in a great degree rendered unnecessary. When an apparatus, by its weight or by bands, is attached to the bed, to give any degree of support to the place of fracture, it must bind the member closely; and then, when the body in its motions, makes an effort on the superior fragment, there is nothing to resist displacement but the apparatus, and in making this resistance it must press most forcibly on that side toward which the body has moved. Whenever such apparatus is used, most painful and injurious unequal pressure is found to be produced by some part of it soon after its application, although it may indeed, when first adjusted, support the limb with perfect equality. This was an evil with which I was constantly contending unsuccessfully in the use of the double concave splint, until the idea of suspending the apparatus and the limb occurred to me. I would place the limb in the apparatus, and so adjust it, that there was perfectly equal support, and no galling pressure complained of by the patient, and so prop the apparatus that it could not give way; but on visiting the patient, perhaps the next morning, I would often find that, although the apparatus had been perfectly stationary, the body had moved, and this had caused the thigh to be urged against some resisting portion of the apparatus. I made an approximation toward the expedient that I now use for this evil, by making the apparatus as light as possible; and so closely adapting it to the limb that it should pertain to it rather than to the bed, and move with the body when any considerable degree of force should be exercised upon it by the latter. I was also careful to attach to the apparatus a piece which should extend upward along the body, and which was secured to the loins by a bandage. Still, however, the difficulty was but in part overcome.

At length I observed that whenever a patient, suffering from fracture, wished to change his posture in bed, he could do it without inflicting the least injury on the member, or bringing any unequal strain upon the apparatus, provided the limb and the apparatus were raised from the bed and held lightly in the hands of an assistant, so as readily to follow the motions of the body. It then occurred to me that it might be kept constantly thus suspended by means of a cord attached to some fixed point above, so that the patient, in all his motions, would enjoy this
kind of assistance. Accordingly I contrived a small frame to
place over the limb, resting on the bed upon each side of it, and
by means of cords slung the apparatus up to this. I was grati-
fi ed to discover that my object was thus in a great degree ac-
complished. The frame, however, as it rested on the bed, was
too unsteady, and the motions of the limb would sometimes up-
set it. I then at length slung it up to the ceiling by a hook
driven into a joist over the patient's bed. I at first committed
the error of attaching four cords to the apparatus, two on each
side of the limb, and at the distance of three or four inches from
each other. These were brought together above the limb and
tied to a single cord which attached the whole to the frame. I
found that these four points of attachment impaired the facility
of motion, and partially enabled the muscles to move the supe-
rior fragment, independently of the inferior. I therefore sus-
pended the apparatus at only two points, directly opposite to each
other, by two cords which met at a short distance above the leg,
and there terminated in a single cord. Sometimes I have passed
these cords through a pulley attached to the single cord suspend-
ing the whole. This gives greater freedom of motion, but in
some instances the limb rolls too freely, especially when the
fracture is recent. This was equivalent to suspending it at one
point, because, as the two points of attachment were directly
opposite, and at the centre of gravity of the limb, they formed
but one centre of motion or pivot. I now found my design com-
pletely fulfilled, and in regard to this indication, after treating
numerous cases, have found my apparatus to be, as I think, per-
fect.

Mr. Amesbury's observations bearing upon this subject, are
very judicious, and the apparatus which he employs is inge-
niously adapted to meet the difficulty in part; but the impor-
tant principle upon which I have dwelt above, is by him over-
looked, and without attention to it, it is my conviction that, in
many cases at least, difficulty will be encountered, and in all
cases the patient subjected to unnecessary suffering.

2. The next subject of consideration with the surgeon is, to
furnish a support for the fractured member which shall diffuse
the pressure made by its weight, as generally as possible, over
the inferior surface of the limb. Every one is aware of the dis-
tress which is occasioned by allowing the limb to rest only on
two or three points. When the leg rests upon a common mat-
ress, the weight will chiefly rest on the heel, and the pain
which soon results from it, is often agonizing, although the soft-
est materials may be placed beneath this point. No part of the body can rest for any length of time in one unvarying attitude, upon the softest support, unless the basis of that support is accommodated to the form of the body so as to equally diffuse the pressure. Witness the sloughs which are often produced on the hips, sacrum, spine, ears, &c. by protracted confinement in various forms of disease, and in many cases of fracture. A down bed will not obviate the difficulty, and indeed no support of this kind can be properly furnished to a broken limb, because it is an unsteady and varying support. Besides, the bed of the limb must be a part of the apparatus, and move with it in all the movements of the limb. It must be such that the surface of it may be perfectly adjusted to the inferior surface of the limb, and equalize the support and pressure from hip to heel. This I at first endeavored to accomplish by the employment of an apparatus devised by the late professor N. Smith of Yale college, and which indeed in regard to fractures of the thigh, has been the basis of the apparatus which I now use, at least so far as the support of the limb is concerned. This consisted of two pieces of some firm material; the one warped and adapted to the shape of the inferior surface of the thigh, the other to that of the leg. These were designed to be adapted as perfectly as possible to the surface of the member, and indeed, the object was accomplished by their use in a great degree, but still I found by experience that it was far from being perfect, because the material being rigid and incapable of change, when once applied, could not be accurately adapted to the peculiar form of each limb. I therefore, after many experiments, resorted to the material which is represented in the plate, and the application of which will be better understood in the description of the plate and the mode of constructing the apparatus. It is, in short, easily adapted to the surface of the inferior semi-circumference of the limb, is so firm as never to give way at any point, and can be at any time varied so as to suit the changing form of the limb from swelling, or its subsidence. One great advantage in the employment of such a support consists in this; that the pressure of the limb, as it sinks into a hollow fitted to its shape, is one of the most important of the means which preserve the form of the limb. The instant that the member is dropped into the concavity of the apparatus, it assumes its natural form by its own gravity; and indeed so important is this in the preservation of the form of the limb, that very little lateral pressure is necessary.
3. The next object is, so to adapt the apparatus effecting the above ends, that it shall be consistent with a degree of motion and change of posture in the patient’s body. However elastic may be the matress on which the patient rests, one unvarying attitude soon amounts to absolute torture. No one can or will for a long time endure it, even although by change of position the fragments of a broken bone should be distorted, or thrust into lacerated flesh. How often do we hear the unhappy results of the treatment of fractures accounted for by the restlessness of the patient, and his constant change of position! This should be no apology for the surgeon, for such motions are absolutely unavoidable, and if his apparatus is not effectual notwithstanding these, then is it imperfect. The healthy functions of the body cannot be maintained without a degree of motion, and if it be not allowed, the recuperative office in which nature is now engaged, must necessarily be embarrassed.

If an apparatus can be devised which shall allow the patient to change his position at will—to obey with ease the calls of nature, and even at times to leave his bed without inflicting the slightest hurt upon the limb, or in the least degree impairing the mechanical office of the splint, it is perfectly manifest that more than half the suffering from a broken bone is obviated, and that the process of re-union must be conducted under the most favourable circumstance. Such I will demonstrate to be the effect of the apparatus about to be described.

Mr. Amesbury’s apparatus, designed for certain fractures of the thigh, although in some respects admirable, is, in this particular, inadequate. In this the body rests on a part of the apparatus, and is secured to it;—the apparatus, indeed, is at once the bed and the splint. But the body cannot change its position in regard to the part on which it rests, and the patient must suffer from motionless confinement.

4. I will not here discuss the question relative to the propriety of complete extension, or semi-flexion in the treatment of fractures of the inferior extremity. I refer the reader to Mr. Amesbury’s conclusive remarks on this subject. I consider the propriety of the angular position of the thigh and leg in these fractures as now established. The apparatus which I employ enables the surgeon to give to the knee and hip any angles of flexion that he may desire.

5. The apparatus is also such, that these angles can be varied and the joints flexed or extended at will, without the removal of any of the supports of the member: This is accomplished
by hinges corresponding to all the large joints concerned in the injury.

6. If any one is pertinacious in the employment of a permanently extending apparatus, it will presently be seen that it might be accomplished by the use of the apparatus about to be described, in a manner as little injurious as in the use of any other method of dressing, and this may be effected too with the limb in the semi-flexed posture, which is more favourable to an equal relaxation of the muscles, and of course to the efficiency of the extension.

But I deny that forcible counter-extension is ever justifiable; first, because it is unnecessary. If the fragments of a broken bone be properly adjusted—made to repose upon a perfectly adapted support—so circumstanced that none of the unavoidable motions of the body shall disturb them—irritated by no injurious constriction of bandages or pressure of any ill-adapted stick, lashed to it under the name of a splint—and especially if not tortured by the pressure of the common extending and counter-extending bands, there will be no tendency to shortening of the member. Unless the fracture be very peculiar, we never have shortening of the arm or forearm from fracture, and yet the bones of those members are surrounded by muscles bearing the same proportion to them that the muscles of the thigh do to the thigh bone. If we can cause the thigh and leg to obey all the movements of the body as perfectly as the arm does, one fragment will not be thrust over the other, nor will the muscles be provoked to contraction.

But I deny that, by the means ordinarily used, permanent extension can possibly be maintained, in any efficient degree, during the treatment of a case of fracture. I deny that any part of the body can endure continued and strong pressure without being destroyed. Even the pressure of a down-bed, if the patient be unable to change his posture, soon produces sloughing. Let a person try the experiment of standing for some time upon one foot; and although the sole of the foot is admirably cushioned to endure occasional pressure, great pain will soon begin to be experienced. Press even with the soft point of the finger on the back of the hand, and in a short time pain will prompt us to desist. There is scarcely any part of the body less adapted to the resistance of injurious pressure, than the ankle and top of the foot. The bones are here of irregular form, and are but thinly covered with soft parts. It is here that the extending bands must be applied, and however ingeniously the bandages or gai-
Smith on the Treatment of Fractures.

ters be applied for this purpose, the pressure must be chiefly received on the malleoli, the heel, and the instep. This cannot be endured long without great suffering, and perhaps sloughing of the soft parts. I have often attempted permanent extension, and have used bands of the softest materials, adapted with the utmost care, but never in a single instance have I been able to keep up any effectual degree of traction upon the limb without producing a degree of suffering which compelled me to abandon the attempt, or so to relax the bands that they were of no avail. I have often examined cases in which, in the practice of other surgeons, the apparatus for extension was employed, and in every instance I have either found the bands so relaxed in consequence of the yielding of some part of the apparatus or the distortion of the body of the patient; or I have found such injury inflicted by their pressure, that the surgeon was compelled to remove them. I have recently been consulted in a case of remarkable shortening of the thigh from fracture treated by a surgeon of eminence with Dessault's splint, as improved by professor Physick, the external long splint extending to the axilla in the shape of a crutch. In this case the extending bands applied to the ankle, produced such a degree of suffering, that in twelve hours they were necessarily removed, and never could be re-applied. The effects of their pressure are yet to be seen upon the ankle. The counter-pressure of the crutch in the axilla, produced lateral distortion of the body in a painful degree.

But the extending apparatus is worse than useless, even in regard to the contraction of the muscles, and defeats its own object. The moment that irritation begins to be produced by the pressure of the bands, that irritation is imparted to the muscles of the limb, and they are provoked to still more obstinate contraction. It gives rise also to that unequal action of the muscles which produces distortion of the fragments. When a person is suffering from the pressure of a tight boot, upon any part of the foot, he makes an involuntary effort, in walking, with the muscles of the leg, so to throw the pressure unequally on the foot, as to avoid the pressure upon the irritated part. His gait is constrained, and he uses his muscles with an unequal and painful effort. In a short time he finds himself crippled and sore in the whole limb. Precisely thus is it in cases of fracture, where, from the pressure of extending bands or of any hard or ill adjusted part of the apparatus, the patient begins to suffer local irritation. He immediately makes an involuntary effort of
the muscles to relieve the part from the pressure, thus distorting the limb, and defeating the effect of the splint in regard to the support of the limb. The involuntary movements of the body, which are multiplied in consequence of the restlessness produced, are also sources of increased difficulty, especially in the use of common splints.

Description of the Apparatus.—The construction of the apparatus will be more intelligible, if it be stated in the first place, that it consists of four pieces, viz. two concave inclined planes the one adapted to the inferior surface of the thigh—the other to that of the leg. These are united by a hinge corresponding to the knee. The third piece is for the foot, and the fourth is connected with the thigh piece and extends upward beside the body, and this we will call the hip piece.

The thigh piece is constructed thus. Two narrow pieces of strong oak, or other hard wood, are to be prepared, twelve and a half inches long, half an inch thick, and seven-eighths of an inch wide. A piece of very thick strong sheet iron, fifteen inches long and an inch wide, is next to be taken, and at each end it must be bent at right angles, first an inch from the end, then again an inch from this, and finally an inch from this last; so that at each end a socket is formed for the end of the piece of wood, an inch square, thus \( \square \). This socket is large enough to receive the piece of wood for the thigh, and also the hip piece. Four holes are made in the sides of the socket by which to screw it to the wood. The piece of iron is now to be bent in the middle, so as to be adapted to the shape of the thigh, and must be bent in a direction opposite to that of the ends for forming the sockets. It should be bent more in the middle than the sides so that it shall be deeper than a semicircle. Its span will be seven inches. The two pieces of wood are now to have their upper ends placed in the sockets, and screwed tightly to them, leaving the outer part of the socket unoccupied, to slip in the hip-piece as occasion may require. A semicircular bow of strong wire, with the ends flattened and perforated with holes for screws, is next to be screwed to the pieces of wood about two inches from their inferior ends. Its extremities are most conveniently screwed to the wood pieces on the outside. The span of this wire is six inches. Thus is formed the skeleton of the thigh piece. The concave floor is to be formed of strong cotton duck, (which I have found after several trials to be the best material) a broad piece of which is to be nailed on each side along the upper edges of the pieces of wood, and allowed to
fall loosely between them so as almost to reach the concavity of the two irons. It should be deeper at the upper than at the lower part, to suit the tapering form of the thigh. It must be wrapped over the superior edge of the upper iron, (a piece of blanket being interposed to make the margin large and soft) and sewed to itself at the inferior margin of the iron. Thus we have an easy, firm and well adapted surface for the thigh to rest upon. To secure the thigh in the splint, take a piece of poplar board one-tenth of an inch thick, twelve inches long, and six wide; glue a piece of strong domestic cotton to one of its surfaces, then split the wood in strips half an inch wide which will of course be held together by the cloth, but allowed to fold upon each other. Two leather straps are to be tacked across this, and by means of four buckles (two on each side attached to the side of the thigh pieces with pieces of leather and tacks) it is fastened to each side, and may be made to embrace the thigh with any degree of tightness. This is far better than a bandage, because making a more firm, steady and unwavering pressure.

Next we form the leg piece, of two pieces of wood of the same size as those of the thigh, but nineteen and a half inches long. They are permanently fixed parallel to each other, and five and a half inches apart, by means of two bows of strong iron wire, passing beneath and screwed firmly to the outside of each piece, the one about two inches from the superior, the other about four inches from the inferior, extremity of the pieces of wood. Thus the frame of the leg portion is formed. To form the concave floor to receive the calf of the leg, take a piece of cotton duck, about two and a half inches wide and seven inches long; nail the opposite extremities of this to the opposite pieces of wood, the superior margin being about an inch from their upper extremities. Let the middle portion sink loosely like a festoon, between the pieces, so that when the leg rests on it, it shall be pressed almost down to the iron bow. This cloth will receive the upper part of the calf of the leg. Another similar piece is to be attached about three inches from the inferior extremities, but as this receives the ankle, it must not sink so deeply between the pieces. These are the only permanent pieces of cloth which are used for this purpose; others are to be placed along the splint at the moment of applying it to the limb, and fitted to the calf of the leg all along, being fastened at the time with tacks to the side pieces, and accurately adjusted to the form of the limb by drawing the ends over the side pieces, until they are found to support the portion of the weight of the limb.
By these the pressure of the weight of the limb is equally diffused.

The thigh and leg portions are now to be united by means of two hinges, one on each side. Each of these is formed of two pieces of very strong sheet iron, as wide as the pieces of ash used in the splint. The upper one, to be attached to the thigh piece, is five inches long. Two inches of its length are screwed to the outside of the thigh piece, and, of course, it projects three inches beyond it. An oblong slit is made in this, commencing at the end of the piece of wood and extending almost to the end of the iron, the slit being about two inches and a half long and a quarter of an inch wide. The end of this iron may be filed semi-circularly. The lower piece of the hinge is to be two inches and a quarter long. It is screwed in the same manner to the leg splint, and extends beyond the piece of wood only three-quarters of an inch. In the centre of this projecting piece, is a round hole, equal in diameter to the oblong hole in the other piece. These two pieces are now to be joined together with a thumb screw, the head of which is on the inside, and the screw with the thumb piece, external. This hinge will allow of free flexion and extension, and as the screw may glide along the oblong slit, we may at pleasure elongate or abbreviate the thigh piece two and a half inches, which is as much as the thighs of different persons differ in length. When the thumb screws are tight, motion is checked; but something is necessary, when the splint supports the weight of the limb, to make it perfectly inflexible at any angle that may be desired.—This is accomplished by attaching a narrow piece of sheet iron, four inches long, to the centre of the iron bow which fastens together the thigh pieces, by merely wrapping one of its ends round it, so as to form a sort of hinge. This piece is to have an oblong slit in it, beginning near the iron bow, and extending near to its extremity; it must also be bent so as to be convex upward. A hole should be made in the centre of the upper bow of the leg portion; then a thumb screw is put through this and through the narrow iron which (when the thigh and leg portions are bent upon each other) comes beneath it. When the screw is not close, the narrow iron will easily slide along the screw, and allow any angle to be formed, and the moment that it is tightly turned, the angle is permanently fixed.

The foot piece is formed of a half-inch board, cut in the shape of the sole of a shoe. Around the margin of the heel a piece of firm leather is nailed, projecting about two and a half
inches, and designed to support the heel. An oblong slit is made in this piece of wood, beginning about an inch from the heel, and extending longitudinally about two and a half inches towards the toe. This is attached to the lower extremities of the leg portion, by means of a piece of sheet iron, as wide as the pieces of wood in the splint, and bent twice at right angles, so that when the side pieces of it are applied to the sides of the leg portion, they will overlap them externally, and the middle part will extend across the extremity from one piece of wood to the other. Each of the side portions of this iron has an oblong slit two and a half inches long, and there is a hole made in the end of each of the pieces of wood. By these holes the iron is attached with a thumb screw, and the oblong slit will slide up and down two inches or more, allowing us to elongate the leg piece in that degree. As they form a sort of hinge, the lower part of it may be elevated or depressed, thus giving any desirable inclination to the foot, which, as will be presently seen, is supported by this piece. A hole being made in the centre of the middle cross portion of this iron, the foot piece of wood, is to be attached to its inside with a thumb screw, passed through the oblong slit, the thumb portion being below. The foot piece will then glide up and down and may be in a moment adjusted to receive any part of the weight of the foot and leg on the leather heel; or the toe may be turned out or in, to suit the right or left limb and to give any desired inclination to the foot.

The hip piece is of ash or oak, nine inches long, a little convex externally, and concave internally, to suit the form of the hip. One extremity is to be rounded and fitted into the socket of the thigh splint, and it is to be fastened with a screw, so as to give it some degree of hinge-like motion. Its inner side is to have a thick compress of soft cloth nailed to it, and somewhat fashioned to the shape of the hip. The superior extremity extends to the lowest rib, or higher. This is secured to the body by a piece of strong cotton webbing, two yards long. To one end of this a buckle is attached, and the band is nailed to the outside of the hip piece, at right angles, so that the buckle shall be only a few inches from the piece and in front of the body. The other long tail of the band is now to be carried down behind the haunch—up along the perineum, between the thighs so as to embrace the thigh part of the apparatus at its upper part—then spirally up over the grain to the outer side of the hip, over the hip piece and then around the back—the left loin, and so completely round the body to the buckle, where it is to be secured.—
This I have found far more permanent and secure than the bandage.

The application of the apparatus may be thus effected. When the fracture is one of the thigh, it is applied entire. The surgeon causes the limb to be raised by assistants, the leg being bent at an easy angle on the thigh, and the splint bent to correspond. The apparatus is then brought under the limb by the surgeon, and the assistants let the member sink into the hollow for its reception, care being taken to press the upper margin of the thigh piece snugly against the perineum and the tuber of the ischium, against which it should rest. The surgeon then grasps the knee and extending the thigh, coaptates the fragments. The leg is now laid into the corresponding portion, the foot being received into the foot piece, and the upper part of the calf and the ankle resting on the permanent slings. Other strips are now to be drawn under the calf, so as to receive their portion of weight, and are tacked to the side pieces. The anterior short splint is next to be buckled snugly over the thigh, a thick compress being first applied and compresses being placed between the sides of the splint and the receding parts of the thigh and knee. The hip band is now to be buckled. Next, the surgeon takes a roller and beginning its application at the foot, at first binds the toe to the foot piece; then, he carries it spirally around the heel and splint, and brings it back again to the top of the foot around which it once more passes and then ascends upon the leg, making repeated turns as high as the knee, compresses being used to fill up all inequalities between the sides of the splint and the leg. Here it will be observed that each turn of the bandage gives new support to the leg beneath, and adapts the surface of the support more accurately. Should the length of either thigh or leg piece not correspond to that of the member, it may be adjusted in a moment, as heretofore described. The ankle also be varied at pleasure.

The whole is then to be elevated from the bed, and suspended as I have already described. The hooks which hold the apparatus should be attached below the knee. At the Baltimore Infirmary, I use a matress which has an oblong portion, in the angle, corresponding to the leg piece, cut out, so that the foot swings clear without being raised very high. This also causes the limb by its gravity to exercise some degree of traction on the muscles and to assist in preventing the shortening of the limb.

When the fracture is one of the leg near the knee, the hip piece may be removed, but the thigh piece must be retained; first, because it more effectually prevents motion at the place of
fracture and causes the splint to move with the body, and next because no more perfect support for the thigh can be devised, even if it were of no other use than for this purpose. When, however, the fracture of the leg is near the ankle, the thigh piece may be dispensed with. The leg piece must then be adjusted with great care, and particular attention must be given to the foot piece, for the proper support of the foot is the principal source of difficulty in these fractures. But with this apparatus we have complete command of it. We can fix the foot in a moment so as to be perfectly immovable, and can with great ease render its attitude precisely such as we desire. The toe should be a little inclined forward and outward, and the pressure should be carefully equalized between the ankle and the heel by elevating or depressing the foot piece. Deformity in these fractures, often results from the sinking of the heel. This we can with ease prevent without causing it to suffer from pressure, for the foot is partly supported on the wooden sole, and the leather for the heel is concave. Short splints of binders' board may be applied to the calf or shin if desired.

It will now be apparent, that, in dressing the injured member, there is no necessity for disturbing the supports in the least. All the bandages may be removed and the limb viewed as it lies in the hollow of the apparatus. If any of the slings are not sufficiently tight, they can be drawn up and adjusted. If it be a compound fracture, the wound can be dressed with perfect facility, and by placing a tin trough beneath it to conduct the water into a bucket, as we practice in the Baltimore Infirmary, a thorough ablation may be performed without disturbing even its posture.

Index to the Plate.—Fig. 1. The apparatus complete. a the hip piece; b the band which secures it to the body and thigh; c its hinge; d, d, the wooden side pieces of the thigh portion; e the iron attaching them at the superior extremity; f, f its sockets; g the second iron bow; h, h the floor of cotton duck; i the thigh portion of the hinge; j the leg portion of the same; k the thumb screw; l l the wooden sides of the leg portion; m, m the iron bows uniting them; n, n the slings of cotton duck; o a movable sling; p apparatus for adjusting and fixing the angle; q wooden foot piece; r leather which supports the heel; s iron which supports the foot piece; t end of the same fastened to the leg portion by the thumb screw, so as to allow of being extended or made shorter; u thumb screw which attaches the foot piece to the iron, allowing it to be adjusted to any position; v, v hooks which suspend the apparatus; w cord attached to the same; x loop in the cord (sometimes a pulley) through which the cord, attached to the apparatus, passes.

Fig. 2.—Foot piece separate.
Fig. 3.—Apparatus applied.
Smith on the Treatment of Fractures.

It will be observed that I have not spoken of the many-tailed bandage. The apparatus above described, embraces the member so snugly, that I deem it altogether unnecessary.

The apparatus is equally applicable to injuries of the knee and ankle joints.

The following cases recently treated with the apparatus, kindly furnished by my friends Drs. Thomas and Baer, are appended to illustrate its practical utility. Those obtained from the Infirmary, are but briefly reported, as only such facts were required as related to the application and use of the splint.

To Professor N. R. Smith: Baltimore, August 20, 1833.

Dear Sir,—Having lately used your apparatus for fracture of the leg, &c. with great success and satisfaction, in a very bad case of compound dislocation of the ankle joint, I take pleasure in sending you a short history of the case, with some remarks upon the peculiar advantages of the apparatus.

The case occurred the 11th of June, 1833, in the morning. The subject of it, Alexander Patton, is a healthy, robust, young Irishman, of sober habits; his horse, in turning a corner of the street at full speed, slipped, and fell upon his rider’s left leg. Being present at the time, I immediately became aware of a dislocation of the left ankle, (of the tibia outwards,) accompanied with extensive laceration of the integuments, of several ligaments, and of the anterior tibial artery. The laceration extended from near the outer insertion of the tendo achillis, across the front of the ankle, to the malleolus internus; embracing two-thirds of the circumference of the ankle: the sole of the foot looking inwards and upwards, the cavity of the joint was entirely exposed, the articulating surfaces of the astragalus tibia and fibula all apparent. A bystander was requested to support the leg with the knee in a semiflexed position, and I proceeded, without loss of time, to reduce the dislocation, which was easily accomplished. Placing my thumb on the tibial artery, which still continued to bleed, I had him conveyed into a house near at hand, where professor Geddings shortly afterwards saw him with me. It was agreed to administer an opiate (the poor fellow writhed with pain,) and to apply professor Smith’s apparatus for fractures, &c. In the meantime, his leg was placed on an inclined plane, and the patient enjoined to be quiet. Professor Smith kindly furnished me with his apparatus, and assisted in its application. The edges of the wound,
Smith on the Treatment of Fractures.

(which presented the aspect of a clean cut,) were approximated by adhesive strips, over which was applied the many tailed bandage. The limb was then placed in the apparatus, in which it was secured by a roller, passing from the toes to the knee; the apparatus being then attached to the pulley, was, with the leg, suspended to a hook in the ceiling. Patton, who until this time, (a period of three hours) had been in constant pain, now experienced great relief from it, and in half an hour fell asleep. He was carried to his home the same evening on a hand barrow without inconvenience or pain, his leg swinging to a framework on the barrow. Patton was directed to observe low diet, and take an occasional purgative.

12th. Patton slept well last night, no untoward symptom, very little constitutional disturbance manifested.

On the 4th day, there was some swelling and heat about the ankle; a bread and milk poultice was applied over the dressings, and continued till a slight suppurative action was established. When the adhesive strips, which were first applied, came off, they were succeeded by others. At the end of seven weeks, he was able to do without the apparatus; at present, August 17th, he is prevented from walking only by the delicacy of the cicatrice; every motion of the joint is preserved, flexion, extension, abduction, and adduction. I attribute the very fortunate result of the foregoing case mainly to two circumstances; the first, the good constitution of the patient, the second, the great comfort and ease your apparatus afforded him.

I consider the apparatus pre-eminent for its simplicity, for its excellence, and for its agreeableness to the patient. Were I to designate any particular part of it, I should speak of the foot piece, which can be adjusted with such facility to the foot; the heel may be raised or depressed, the foot abducted or adducted, the angle the foot makes with the leg increased or diminished at pleasure, without disturbing the rest of the apparatus. But it is from the suspension of the limb, that the patient experiences the greatest relief and comfort. It removes entirely, the necessity of lying for weeks in the same position, for in this apparatus, he may move up and down in the bed, and turn on one side or the other at his pleasure. On one occasion, I found my patient lying fast asleep on his face; he declared that the comfort the contrivance gave was inexpressible.

I remain very truly, yours,

Richard H. Thomas.
Smith on the Treatment of Fractures.

Baltimore, August 22, 1833.

Dear Sir,—It gives me pleasure to report the successful treatment of the following case of fracture, to which you had the kindness to apply your splints.

Mr. E. N. Sweeney had a compound, comminuted fracture of the right leg, about four inches above the ankle. After the parts had been adjusted, the leg was placed in your apparatus, and then, with a cord, it was suspended to the ceiling. This gave him entire control of his position, and he could at pleasure leave the bed and seat himself on a chair, or by moving the suspensory hook, he was enabled to move to any part of the room with great ease, and without exciting the least uneasiness in the fractured part. After the third day, there was an entire absence of pain, and the limb so comfortable that Mr. Sweeney was enabled to transact business with his customers in his room.

Yours, respectfully, M. S. Baer.

To Dr. N. R. Smith,
Professor of Surgery in the University of Maryland.

The following cases have been furnished me by my intelligent young friend, Mr. T. I. Franklin, senior student of the Baltimore Infirmary.

Baltimore Infirmary, August 19, 1833.

Professor Smith:

Dear Sir,—In compliance with your request, I send you a brief account of the following cases of fractures, treated with your apparatus at the Baltimore Infirmary.

Case 1. James Bose was received into the Baltimore Infirmary, on the 17th February, 1833, to be treated for compound fracture of the leg. This patient was about twenty-eight or thirty years of age, a man of a very robust constitution, one who had been exceedingly temperate in his mode of living, and until this accident occurred, in the enjoyment of perfect health.—Bose, (whose occupation was that of a labourer on the Baltimore and Ohio Rail-road) received the injury in consequence of being precipitated from a car, which was descending the inclined plane of the Rail-road, about sixty miles from Baltimore. Several barrels of flour with which the car was laden falling on his body, effected a fracture of his leg, and inflicted several severe contusions on his thighs, arms and head.

He did not enter the Infirmary until the third day after the accident, and his leg in the meantime had been entirely neglected. Upon examination it was found that there was a fracture of the tibia and fibula, attended with very extensive lace-
ration of the soft parts, the wound occupying an extent of five or six inches in the direction of the length of the limb, and three in breadth. This, throughout nearly its whole extent, was in a state of gangrene. The extremities of the broken bones protruding through the wound, it was easily ascertained that the direction of the fracture was oblique.

Dr. Smith (at that time attending surgeon) had very little expectation of being able to save the limb, but determined to make the attempt. It was placed in the apparatus which he uses for this fracture, and a fermenting cataplasm was applied to the gangrenous sore, which was first well washed in diluted chloride of soda.

It was found, upon removing this at the end of twenty-four hours, that the progress of the gangrene had been completely arrested. Simple bread and milk poultices were now used, together with the chloride of soda. A good deal of symptomatic inflammatory fever attending, it was found necessary to evacuate the patient freely by blood-letting and cathartics; he was bled three times in the course of two or three days, to the extent of oz. xviiij. at each bleeding, and was well purged by saline cathartics. At the end of a week, there remained no general disturbance; the wound assumed a healthy appearance, and from this time the healing process went on rapidly. Owing to the removal, by sloughing, of some of the soft parts covering the tibia near the place of fracture, a portion of this bone was for some time left exposed, and it was apprehended that there would be considerable exfoliation; but the granulations which arose rapidly soon covered it entirely, so that but little exfoliation took place subsequently.

So comfortable did this apparatus render the patient, that severe and extensive as the injury was, he suffered scarcely any pain; indeed, after the first few days, almost the whole pain he suffered was occasioned by the removal and application of the dressings. At the end of three or four days, he was able to remove himself from one bed to another, requiring no other assistant than one to support the apparatus by the cord as he moved. He could remove himself in this way whenever the bed on which he was became uncomfortable, without experiencing the slightest pain whatever. He could assume any position in bed he pleased—could sit up or lie down, and turn on either side without any inconvenience.

At the expiration of about thirteen weeks, the bones being found to be pretty firmly united, and the sore nearly healed,
the limb was then removed from the apparatus, and laid on a pillow, and from this time it required no other attention than merely to apply a roller smoothly around it to reduce some swelling which still remained, and occasionally to remove some small portions of exfoliated bone. He was not able to support his weight on the limb entirely for several weeks after it was taken out of the apparatus, but could walk, with the assistance of crutches, with great facility.

Boze left the Infirmary on the 21st of June, and walked to his lodgings in a distant part of the city. The leg which had suffered fracture was now quite as good as the other in every respect; perfectly true, and not at all shortened.

Case 2. William Lambert, aged thirty, was admitted into the Infirmary on the 22d of July, 1833. He had a fracture of the tibia and fibula which was produced by the falling of a heavy sack of salt on his leg from a height of fifteen or twenty feet. The extremities of the bones piercing the integuments, rendered the fracture a compound one; there was at first considerable bleeding from the wound, but it ceased after compresses had been applied. The leg was placed in the apparatus and comfortably bound up. As the patient did not suffer the slightest pain from the time the apparatus was applied, and as every thing seemed to be going on well, the bandages were not removed until the expiration of three weeks, when it was found that the wounds of the soft parts had healed entirely, and that the case was progressing favorably.

At this time, 20th of August, just four weeks since the occurrence of the fracture, the bones are firmly united, and the limb perfectly true and as long as the other. Indeed, so perfect was the form of the member that the place of fracture could scarcely be felt.

This patient could also move his body in any direction he pleased without disturbing the relation of the fragments, or producing the slightest pain. By allowing the leg to swing freely, he could shift himself round on his hands so as to place himself in a chair by the bed side, the leg hanging at right angles to the bed.

Case 3. James O'Donnell, aged twelve, had his left thigh broken by being run over by a cart. He was brought to the Infirmary, August 12, and had his thigh placed in Dr. Smith's apparatus. He was immediately rendered very comfortable, and up to this time, August 20th, has not complained of any pain or inconvenience whatever. He enjoys perfect freedom
of motion, and is quite comfortable in every respect, and the
support given to the member appears to be perfect.

T. I. Franklin.

Art. II. Observations on several cases of doubtful Suicide or
Homicide, recorded in history. By T. RömeYn Beck, M. D.
Professor of the Theory and Practice of Physic in the Uni-
versity of the State of New York, and Lecturer on Medical
Jurisprudence. Read before the Albany Institute, March,
1833.

There have at various times occurred cases of sudden death,
which from their connexion with leading individuals or political
events, have caused deep and universal interest. The passions
of men, when raised, give a coloring to every incident, and with-
out weighing evidence, or estimating probabilities, they are rea-
dy to accumulate suspicion, until in their minds, it reaches cer-
tainty. Nor is the effect confined to the period itself. If the
subject include a censure of this or that class of politicians—or
of an obnoxious religious sect, it will be transmitted from gene-
ration to generation. History itself is occupied either in un-
wravelling the web of sophistry—or unworthily degrades its high
office, in recognizing and perpetuating the prejudices or the false-
hoods of an excited populace.

Several instances are on record illustrating the remarks which
I have now made. Some can be viewed through the distant
vista of centuries—others are of our own times.

The first that I shall notice, is the case of Sir Edmundbury
Godfrey, which occurred in England in the year 1677, and
during the reign of Charles the Second. In an examination
which I made some years since of the circumstances attending
it, I drew up the following abstract.

"Sir E. Godfrey, an eminent magistrate of Middlesex, was
murdered on the 12th of October, 1677. The manner of his
death, as proved by accomplices, on the trial of Green, Berry
and Hill, for his murder, was this:—Having enticed him under
a false pretense to a remote situation about Somerset House, a
man came behind him, twisted a handkerchief, and threw it
about his neck, when four of them threw him down and stran-
gled him. Not entirely accomplishing their purpose in this way,
the person who fixed the handkerchief, twisted his neck round,
using violence to the body with his knee. This was on Satur-
day night. The body was concealed till the Wednesday night following, when about 12 o’clock it was carried away in a sedan chair, and thrown into a ditch. They then passed his own sword through him, and laid his gloves and some other things on the bank, so as to excite the belief that he had committed suicide. In this situation the body was found, and on examination it was observed, that an attempt had been made to run him through, but it was prevented by striking on a rib. There was no blood at this wound. The sword, however, passed quite through his body; projecting two hands’ breadth beyond his back; and Skillard and Cambridge, the surgeons, deposed, that it went through the heart. When the sword was drawn out, no blood followed, nor was there any about the place. The neck was dislocated, and so flexible, that it could be turned from one shoulder to the other. His face, during life, had always been remarkably pale, but it was now much suffused; the eyes were bloodshot, and there was a mark round the neck an inch broad."

In a review which appeared in the Edinburgh Medical and Surgical Journal for July, 1824, which I have reason to believe was written by Dr. R. Christison, the late eminent Professor of Medical Jurisprudence in the University of Edinburgh, and now Professor of Materia Medica, are the following observations.

"In the course of his remarks on death by strangling, Dr. B. has investigated the famous case of Sir E. Godfrey, alleged to have been murdered by the pretended popish conspirators, in the reign of Charles II. He adopts the opinion, that Sir Edmund was murdered, but we apprehend without sufficient reason. The medical evidence, though voluminous and minute, if diligently and impartially sifted, will be found to bear on neither side of the question. We cannot conceive how Dr. Beck should maintain, that all the testimony brought forward on the trial of the three printers, for libelling the nation, by asserting that Sir Godfrey had committed suicide, ‘only proved the fact of strangulation, more strongly.’ The proof of strangling is quite inconclusive. Dr. Smith has likewise taken the same view of his case, and in giving an abstract of the moral evidence, seems to assume it as valid and uncontradicted. Dr. Smith is surely

*Hargrave’s State Trials, vol. 2, p. 759. Burnet, vol. 2, p. 42. Smith’s Forensic Medicine, p. 225. Several persons were afterwards tried, for stating that Sir E. Godfrey had murdered himself, but all the testimony adduced (see that of Lazenby and Hobbs) only proved the fact of strangulation still more strongly. Hargrave’s S. T., v. 3, p. 505."
not ignorant, that whatever may have been the manner of Sir E. Godfrey's death, the story sworn to on the trial of the alleged murderers, was afterwards rendered null by the condemnation for perjury, of Titus Oates and the rest of his gang, who had been witnesses on the occasion.*

Since the time when these observations were first seen by me, I had intended to re-examine this case, but have been prevented until now. I cannot too early state, that so far as any facts depend on the testimony of the "gang of Titus Oates," they are utterly to be discredited. Hence, the assertion of Bedlow his associate, who pretended that he knew the secret of the murder, deserves no regard, while Praunce, a witness on the trial (of Green, Hill and Berry, the supposed murderers, and who unfortunately were condemned and executed,) and who swore to all the details of the strangulation, afterwards confessed himself guilty of perjury, and was punished for the same. Green, Hill and Berry, died asserting their innocence. Indeed Bishop Burnet says that "witnesses were said to have proved that they came home in a good hour on the nights in which the fact was said to be done."

Nor is the opinion tenable that he was a victim of the supposed popish plot—and even if its existence be considered consonant with facts, there are many circumstances showing the improbability of Sir Edmundbury's being so obnoxious as to be selected as a victim.†

Having thus cleared the subject of the party prejudice which even at the present day somewhat envelopes it, and confessed that so far as I have relied on the testimony of discreditable witnesses, the facts and the inferences drawn from them are to be rejected. I proceed to examine the case, simply in the light of one, either of ordinary suicide or homicide.

I commence with the statement of Bishop Burnet. This writer, though deemed credulous, and where party intervened, prejudiced, is, I believe, considered worthy of perfect credence when relating circumstances that come under his own observation.

†"He was a zealous Protestant, and loved the church of England, but had kind thoughts of the Nonconformists, and was not forward to execute the laws against them. And he, to avoid being put on doing that, was not apt to search for priests or mass houses. So that few men of his zeal lived on better terms with the papists than he did." Burnet's History of his Own Time, London, 1763, vol. 2, p. 40. Dr. Lingard makes a statement to the same effect.
After stating that Godfrey grew apprehensive and reserved, in consequence of the distracted state of affairs, he adds, that at a certain time, he went abroad in the morning, and was seen about one o'clock near St. Clement's church, but was never seen any more. This was on a Saturday. "He was a punctual man to good hours. So his servants were amazed when he did not come home."

"On Thursday one came into a bookseller's shop after dinner, and said he was found thrust through with a sword. That was presently brought as news to me, but the reporter of it was not known. That night late his body was found in a ditch, about a mile out of town, near St. Pancras' church. His sword was thrust through him, but no blood was on his clothes, or about him. His shoes were clean. His money was in his pocket. But nothing was about his neck; and a mark was all round it, an inch broad, which shewed he was strangled. His breast was likewise all over marked with bruises, and his neck was broken. All this I saw, for Dr. Lloyd and I went to view his body. There were many drops of white wax-lights on his breeches, which he never used himself. And since only persons of quality or priests use these lights, this made all persons conclude in whose hands he must have been. And it was visible he was first strangled, and then carried to that place, where his sword was run through his dead body. For awhile, it was given out, that he was a hypochondriacal man, and had killed himself. Of this, the king was possessed, till Dr. Lloyd went and told him what he had seen."

In June, 1682, Nathaniel Thompson, William Pain, and John Farwell, were tried before Sir Francis Pemberton, Lord Chief Justice of the Court of King's Bench, for writing and publishing letters, "importing that Sir Edmund Godfrey murdered himself." Though a case of libel, they endeavored to defend themselves by calling witnesses to prove the truth of the fact, and this Chief Justice Pemberton allowed to the fullest extent. "You shall make any proof you will," said he to Farwell. Indeed all the witnesses, with the exception of those proving the publication of the libel, were on the part of the defendants.

The following is the medical testimony:

Rawson was one of those who pulled the body out of the ditch. When they had done this, they pulled the sword out and removed the body to the house. Fisher stripped the body.—

He saw two wounds, within an inch and a half one of another, one went no farther than his bone, and the other went through his back. He saw no blood till he came to his back. About his throat there was something that girt him, and his neck was so weak that you might turn it any where. The *Younger Chase* (they were both the king's apothecaries) saw the two wounds and a great contusion on the left ear. The whole face was very much bruised. *Hobbs*, a surgeon, states that his face was bloated, and it looked as if violence had been used. The bloody vessels of his eyes were so full as if he had been troubled with sore eyes. The *Elder Chase* saw the body on Friday. He confirms the above. The body was beaten from the neck to the stomach. "I never saw any man beaten so in my life." *Lazinby*, a surgeon, gave the following testimony: "My lord, he appeared to be strangled, and that which strangled him was kept about his neck till he was cold. My lord, people that are hanged and let down when warm, the blood drains away by the vessels that are broken, and their faces are rather less, and their faces become very pale; but the thing wherein he was strangled remaining about his neck, the blood could not drain away, but it made his face look bloody. The blood that was some four yards from the ditch, was like that which comes from a body after a fortnight's time dead, rather than a week's; it was blood and water; the water will separate from the blood. "His neck from its upper part to the stomach and breast was very much discolored and black, and his mouth was discolored. Now whenever a man is bruised whilst he is alive, or whilst he is warm, that part after the person is dead will soonest corrupt." Mr. *Lazinby* further added, that Mr. *Chase* junior unbuttoned Sir Edmund's collar whilst he was in another room, but he was sent for to see it. "There were two great creases both above and below. I put the collar together, and I perceived the collar made the mark like a strait ring upon a finger, the neck being swelled above the collar and below, by the strangling with a cord or cloth." The eyes were open and bloodshed. "I felt upon his clothes; I admired that his clothes were not wet, there having been so great a storm the afternoon before."

All attempts failed to prove that the eyes were fly blown.*

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*Howell's (Cobbet's) State Trials, vol. viii. p. 1359 to 1398. In the appendix to Farwell and Thompson's trial, is an affidavit by Robert Forset, Esq. stating that on the Tuesday, after that Sir E. G. was missing, he was hunting with a pack of hounds at the very place where the body was after-
It is on this trial and its results that Mr. Hallam makes the following observations.

"That Sir E. G. fell by his own hands was doubtless the suggestion of those who aimed at discrediting the plot, but it is impossible to reconcile this with the marks of violence which are so positively sworn to have appeared on his neck; and on a later investigation of the subject in 1682, when the court had become very powerful, and a belief in the plot had grown almost a mark of disloyalty, an attempt made to prove the suicide of Godfrey, in a trial before Pemberton, failed altogether, and the result of the whole evidence on that occasion, was strongly to confirm the supposition that he had perished by the hands of assassins."

It would be wrong not to state the manner in which the opposite opinion is defended, and I cannot do this better than by quoting the words of the eminent and learned Catholic historian of England, the Rev. Dr. Lingard.

Sir E. Godfrey's father was of a melancholy temperament, and died by his own hands. On the 12th of October, after having been observed to labor under a great depression of spirits, he, after settling his accounts and burning a large mass of papers, "left home at an early hour, and was met in different parts of the town during the day, walking with a hurried pace, and apparently inattentive to anything that passed around him. That very evening it was rumored that he had been murdered by the papists, and five days later, his dead body was discovered among some stunted bushes in a dry ditch on Primrose hill. — It rested on the knees, breast, and left side of the face; a short sword had been thrust with such violence through the heart, that the point protruded a few inches beyond the back; his cane was fixed upright on the bank, his gloves lay near it on the grass, and his rings remained on his fingers, his money in his

wards found, and beat that very place with his hounds and the body was not there, nor any gloves nor cane thereof. He further deposed, that he had on the next day loaned his hounds to Mr. Harwood, in order to find the hare which could not be found on Tuesday. Mr. Harwood has repeatedly affirmed, "that he did accordingly hunt in the same place, and beat the same ditch, and the body was not there that Wednesday at noon." Ibid. p. 1895.


"If, indeed, Godfrey's death was contrived by persons interested in the success of Oates' imposture, it must be owned that no assassination was ever more critically timed, or turned to more ample account." — Quarterly Review, vol. xxxvi. p. 530.
purse. The extrication of the sword was followed by a copious discharge of blood from the wound, and when the body was undressed, a deep purple crease appeared round the neck. In these circumstances, the question to be determined was, whether Godfrey had fallen by his own hand, in which case, the tightness of the collar would satisfactorily account for the discoloration of the neck; or had he been first strangled and afterwards stabbed by the murderers, to induce a belief that he was the author of his own death. After an inquiry of two days before the coroner, the latter was adopted by the jury, but chiefly on the authority of two surgeons, whose testimony betrays their profound ignorance of the phenomena consequent on sudden and violent death. Even at the time, the verdict was deemed so unsatisfactory, that other medical practitioners solicited permission to open the body, but to this, the brothers of the deceased made the most determined opposition. They were aware that a verdict of *felo de se*, would deprive them of the succession to his estate, and on that account labored during the whole investigation to impress a contrary persuasion on the minds of the jurors."

I am not aware on what authority several of the assertions of Dr. Lingard are founded. There is, however, one, which appears to be contradicted by testimony on the trial last noticed. Mr. Hobbs, the surgeon, says distinctly, "Indeed, my lord, I thought he was strangled, that was my opinion; I cannot tell whether I was mistaken. I said to Dr. Goodall, it would be very well if Mr. Godfrey would send for a surgeon and a physician from the court, and others from the city, to satisfy all persons."

The Edinburgh Reviewers, in noticing the remarks of Dr. Lingard, dispose of them as follows.

"We think, however, that as far as uncontradicted evidence goes, the suicide of Sir Edmundbury Godfrey is more improbable than Dr. Lingard supposes it to be; though we have not the remotest thought of attributing his murder to the Catholics; nor even do we deny that he might have fallen by his own hands—upon which hypothesis great part of the testimony must be very incorrect."†

ARThUR, EARL OF ESSEX, was committed to the Tower on the 10th of July, 1683, on a charge of high treason. This was in the reign of Charles II. and at a time when his brother James, Duke of York, was supposed to have great influence in the government. On the 13th of July, (the same day on which Lord William Russell was tried and capitally condemned,) the earl was found dead in his chamber, with his throat cut. A coroner's jury was summoned, but before they were empannelled, the earl's body was taken out of the closet where it lay, and stript of its clothes. These were carried away and the closet washed. And when one of the jury insisted upon seeing his clothes, the coroner was sent for into another room, and on his return, told the jury, it was my lord's body, and not his clothes, they were to sit upon. Before the jury, two surgeons, Sherwood and Andrews deposed as to the wound. Sherwood stated, that the aspera arteria (trachea) and gullet, with the jugular arteries, were all divided. Andrews said, that the throat was cut from one jugular to the other, and through the windpipe and gullet into the vertebrae of the neck, both jugulars being divided. The verdict of the coroner's jury was in the following words: "That with a razor, the Earl of Essex gave himself one mortal wound, cut from one jugular to the other, and by the aspera arteria and the windpipe to the vertebrae of the neck, both the jugulars being thoroughly divided; and of this he died."

One Laurence Braddon shortly after, formed the opinion that the Earl of Essex had been murdered, and as he afterwards stated, conceived it to have been accomplished by individuals who were allowed to pass, by the Earl's keepers. These murderers, he supposed were set on, by the Duke of York, afterwards James II. He was tried for a misdemeanour, in suborning witnesses to prove this, and was found guilty and fined £2000.

After the revolution in 1690, he published a pamphlet entitled "The Earl of Essex's innocence and honor vindicated," &c. This was enlarged, and the subject treated in a more elaborate manner, by him, in a tract entitled "Bishop Burnet's late history charged with great partiality and misrepresentations, to make the present and future ages believe, that Arthur, Earl of Essex, in 1683, murdered himself;" and published in 1725.* These contain some additional particulars.

The closet was about three feet two inches wide, and there was no blood higher than the floor. The instrument itself, was

* The first pamphlet is in Hargrave's State Trials, vol. 3, p. 855. The last in Howell's State Trials, vol. 9, p. 1229.
Beck on Doubtful Suicide.

a French razor, four inches and a quarter in its blade, and no spill or tongue at the end. Hence it must have been held by the blade, and it would seem difficult to inflict so large a wound with it. A surgeon is stated to have suggested to the coroner’s jury, that the notches in the razor were made by my lord against his neck bone. Lord Essex also was right-handed, and the razor lay on the left side. Two witnesses swore that the neck of his cravat was cut in three pieces, and there were five cuts on his right hand.

Bishop Burnet was of opinion that the Earl committed suicide, and in this he is followed by most modern historians. He remarks, that “Lord Essex had got into an odd set of extraordinary principles. And in particular he thought a man was master of his own life, and seemed to approve of what his wife’s great grandfather, the Earl of Northumberland did, who shot himself in the tower, after he was arraigned. He had also very black fits of the spleen.” Burnet also gives us the following medical facts:—“When the body was brought home to his own house, and the wound was examined by his own surgeon, he said to me it was impossible that the wound could be as it was, if given by any hand but his own. For except he had cast his head back, and stretched up his neck all he could, the aspera arteria must have been cut.” Both the jugulars and gullet (he adds) were cut just above the aspera arteria.*

The discrepancy between this account and the statement given under oath by the surgeons, before the coroner’s jury, is particularly deserving of notice.

The investigation, however, did not rest here. In 1689, a committee was appointed by the House of Lords to “take information concerning the death of the Earl of Essex.” Several physicians and surgeons who were examined before them, declared “that they would not positively say that it was impossible for my lord to cut his throat through each jugular vein, the aspera asteria and gullet to the very neck bone, and even behind each jugular vein on each side of the neck (as some judicious surgeons who had viewed the throat, had reported it to be cut,) but this they would be very positive in, that they never saw any man’s throat so cut, which was cut by himself. And they did then further declare; that they did believe, that when any man had cut through one of his jugular veins and the gullet and windpipe, and to the very neck bone, nature would thereby be so

much weakened by the great effusion of blood and animal spirit, that the _felo de se_ would not have strength sufficient to cut through and behind the other jugular, as my lord's throat, by the surgeons who saw it, was said to be cut."

No report was, however, made by this committee. Lord Delamere resolved to draw it up himself, but before he had completed it, the parliament was prorogued, and afterwards dissolved,—and consequently all further proceedings were stopped.

I cannot conceive it possible, if the medical testimony which I have quoted, be credited, to doubt that Lord Essex was murdered. Historians, however, as I have already mentioned, concur in deeming it a case of suicide. I will only quote two, Hume and Hallam, and I beg the reader carefully to compare what they say with the _facts_ now given. I cannot imagine that their deductions will be deemed of sufficient weight to overthrow positive testimony.

The following are the remarks of Hume:

"On the day that Russel was tried, Essex, a man eminent both for virtues and abilities, was found in the Tower, with his throat cut. The coroner's jury brought in their verdict, _self-murder_. Yet because two children, ten years old, (one of whom too departed from his evidence,) had affirmed, that they heard a great noise from his window, and that they saw a hand throw out a bloody razor, these circumstances were laid hold of, and the murder was ascribed to the king and the duke, who happened that morning to pay a visit to the tower. Essex was subject to fits of deep melancholy, and had been seized with one immediately upon his commitment. He was accustomed to maintain the lawfulness of suicide, and his countess, upon a strict inquiry, which was committed to the care of Dr. Burnet, found no reason to confirm the suspicion; yet could not all these circumstances, joined to many others, entirely remove the imputation.

"But though there is no reason to think that Essex had been murdered, by any orders from court, it must be acknowledged, that an unjustifiable use, in Russel's trial, was made of that incident. The king's counsel mentioned it in their pleadings, as a strong proof of the conspiracy, and it is said to have had great weight with the jury. It was insisted on, in Sidney's trial, for the same purpose."

Mr. Hallam is of opinion, that it was a case of suicide. He

* Hume, chap. 69.
cannot think that Charles II. and James caused a detestable murder to be perpetrated on one towards whom they had never shown any hostility, and in whose death they had no interest.* And yet he informs that James (for Charles was never accused of any agency, direct or indirect, in the transaction,) approved of Jefferies' cruelties,+ and that he assisted at the tortures in Scotland.† Who ever trusted with safety to the tender mercies of the House of Stuart?

I conclude the notice of this case by the following extract from Braddon's pamphlet.

"Queen Anne, upon her first coming to the throne, struck me out of the civil list; because, as her majesty then said, I had thrown blood in her father's face."* William's queen, as well as Anne, were daughters of James, and on either supposition, whether of guilt or innocence, with the facts already stated, it will be readily understood why the proceedings of parliament should never have come to a definite conclusion.

In modern times, the deaths of General Pichegru and the late Duke of Bourbon, have excited the greatest interest. I shall notice these in a succeeding paper.

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**Art. III. On Poisoning with the Preparations of Chrome.**

By J. T. Ducatel, M. D., Professor of Medical and Pharmaceutical Chemistry, University of Maryland.

Dr. Christison, in his elaborate Treatise on Poisons, has furnished us with full accounts of the toxical properties of most of the substances used as remedial agents, and of such as are employed in the arts. There are but few chapters in that excellent treatise to which more recent discoveries have as yet added any thing of importance; and the least satisfactory of its sections perhaps, is that which relates to the properties of the chemical preparations of chromium. In reference to these, nevertheless, and in the short notice which is taken of them, there is mentioned the principal facts connected with their natural history as poisons. Our intention, therefore, is solely to consign a few additional facts to this history, relating as it does to substances produced on a large scale in our immediate vicinity; extensively

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† Ibid. vol. iii. p. 92, 435.
used in the arts of painting and dying; and the noxious qualities of which, though sufficiently familiar to some, to have been already resorted to for criminal purposes, seem not so generally known to medical practitioners as the latter circumstance now renders it necessary that they should become.

Chromium is arranged by Dr. C. in his third order of the irritant class of poisons, which includes the compounds of the metals. It is associated with tin, silver, gold, bismuth and zinc, and their effects it is said, are "passed over shortly; because they are little known as poisons, and it is therefore, only necessary that their existence and leading properties be mentioned." But circumstances to which we have just alluded, require that greater interest should be attached to the metal now under consideration; and that every ascertained fact relating to the physiological and pathological action of its preparations, considered as toxic agents, should be systematically laid down. In attempting to do this, we shall follow Dr. Christison's method, when treating of the other metallic poisons regarded as of more importance, namely: arsenic, mercury, &c., commencing with a brief account of so much of the chemical history of the preparations of chromium, as it is necessary for every medical man to know.

Of the Chemical History and Tests for the Preparations of Chromium.

Chromium is with difficulty obtained in its pure state. It is a white metal, brittle, and very infusible. With oxygen, it forms two definite compounds—the green oxide, and chromic acid.

The proto, or green oxide,* of chromium is insoluble in water; it is nearly infusible, and when strongly heated resists the action of the most powerful acids. It is a salifiable base, the salts of which, when in solution may be distinguished by the following characters. The solution has usually a dark green color. Ammonia, and an infusion of nutgalls throw down a green precipitate. Potassa does so likewise, but the precipitate is redissolved by an excess of the alkali. This protoxide of chromium is used in the arts for painting upon porcelain.

Chromic acid is characterised by its color, which is a dark ruby-red. It is very soluble in water and in alcohol. The solution is partially decomposed by heat, and when boiled with sugar, starch, and other organic principles, the acid is converted

* The chrome green of commerce is a different article. This is a mechanical mixture of chrome yellow and Prussian blue, with occasionally an additional admixture of whiting.
into the protoxide. The colored salts which the chromic acid forms with the alkaline bases, are extensively used in the arts. The chief of these are the chromates of lead, and of potassa. These salts are in general sufficiently characterised by their color, which is either yellow or red, the latter color predominating whenever the acid is in excess: but they may be chemically distinguished by the following test. "On boiling a chromate in muriatic acid mixed with alcohol, the chromic acid is at first set free, and is then decomposed, a green muriate of the oxide of chromium being generated."

The chromate of lead is composed of one equivalent of acid, and one equivalent of the protoxide of lead. It occurs in commerce with various shades of yellow, according as the liquor with which it has been prepared was more or less acid. It is used as a pigment under the name of *chrome yellow*; and has also been reprehensibly employed by confectioners for coloring sugar-plums. Confects suspected of being rendered poisonous in this way, are easily tested by digesting them in distilled water, which dissolves the saccharine and various extractive matters, entering into their composition, and leaves untouched the coloring ingredient. When the solution is thoroughly effected, it should be carefully decanted, and the residue repeatedly washed, then dried on a stove. If it consist of chromate of lead it will, when mixed with a little carbonate of potassa, and exposed to heat in a small crucible, be decomposed, forming an insoluble carbonate of lead, and a soluble chromate of potassa. A solution of the latter in water will yield a yellow precipitate on the addition of a small quantity of a solution of acetate of lead, and a red precipitate with a solution of nitrate of mercury.

A bichromate of lead is sometimes prepared, which consists of one equivalent of chromic acid, and two equivalents of protoxide of lead. It is of a beautiful red color, and has likewise been employed as a pigment.

Chromate of potassa—the neutral chromate—consists of one equivalent of acid and one of potassa. It occurs in commerce in small prismatic crystals of a lemon, yellow color: it is soluble in water, but insoluble in alcohol.

Bichromate of potassa crystallises in rectangular or square prisms, of a beautiful red color: it is soluble in about ten times

* Dr. Turner's Elements of Chemistry.
† We have reason to believe that the mixed article—*chrome green*—mentioned in a previous note, is also employed as a coloring material by confectioners. Although not so injurious as the *chrome yellow*, its use is improper.
its weight of water at sixty degrees, and the solution has an acid reaction: it is insoluble in alcohol. This salt and the preceding are used in dyeing.

Of the Physiological and Pathological Action of Chromium and its Preparations.

Chromium in its pure state, like all other metals, doubtless exerts no influence on the animal economy.

A solution of the salts of the protoxide of chromium has a peculiar taste, which is strong, but rather agreeably sweet. The salts of this genus are probably poisonous; but their properties, in this respect, have not been investigated.

Chromic acid possesses an intensely sour taste, with a considerable degree of astringency: it stains the skin yellow, and the stain cannot be removed by water, but requires the agency of an alkali. Should there be any abrasion of the cuticle, a painful ulcer will be produced. It is no doubt to the free acid present in the vats of dyers who use the bichromate of potassa, that we are to ascribe the troublesome sores with which Dr. Duncan first reported the workmen of Glasgow to be attacked.—These sores are represented as gradually extending deeper and deeper, without spreading, till they sometimes actually make their way through the arm or hand altogether.* This singular effect of a strong solution of bichromate of potassa, is well known in this city, where the article is manufactured in large quantities. Dr. M. Baer informs us, that he has observed it in above twenty cases. Whenever there was the slightest injury of the skin, the solution would produce a painful burrowing ulcer, which continued in spite of all treatment, even so as to penetrate the limb, unless the workman was promptly removed from the room in which the substance is manufactured. Dr. B. further remarks, that he has seen ulcers situated on parts of the body, where he is sure the solution did not come in contact. He thinks it probable that these were produced by vapors charged with chromic acid. On the other hand, the most concentrated form of the solution made no impression upon parts where the cuticle was in a state of integrity. There is no question but that chromic acid taken into the stomach, will occasion all the violent irritating and corrosive effects of other mineral acids, and give rise to the same inflammatory symptoms by which the action of these is characterised.

*Dr. Christison’s Treatise.
The chromates of lead may be considered as doubly poisonous: by their radical and base.

The neutral chromate of potassa, when swallowed, will probably cause inflammation, but perhaps not of a violent kind.

The bichromate of potassa is the most interesting of the salts of chromium, in a toxicological point of view. Its effects on the animal economy have been experimentally investigated by Gmelin. The results of these experiments are stated by Dr. Christison as follows:—"He found that in the dose of a grain the chromate of potassa (bichromate of potassa) has no effect when injected into the jugular vein of a dog,—that four grains produced constant vomiting, and death, in six days, without any other striking symptom,—and that ten grains caused instant death by paralysing the heart. Its effects, when introduced under the skin, are still more remarkable. It seems to cause general inflammation of the lining membrane of the air passages. When a drachm was thrust in the state of powder under the skin of the neck of a dog, the first symptoms were weariness and a disinclination to eat. But on the second day the animal vomited, and a purulent matter was discharged from the eyes. On the third day it became palsied in the hind legs; on the fourth it could not breathe or swallow but with great difficulty; and on the sixth it died. The wound was not much inflamed; but the larynx, bronchiae, and minute ramifications of the air tubes, contained fragments of fibrinous effusion, the nostrils were full of similar matter, and the conjunctiva of the eyes were covered with mucus. In another dog, an eruption appeared on the back, and the hair fell off." It is elsewhere* remarked, in general terms, of this salt, that its action on the animal economy determines convulsions, and palsy; and that it seems to occasion death by paralysing the nervous system. A strong analogy will be perceived in the above account of the action of bichromate of potassa, to one of the varieties of poisoning with arsenic.

Several fatal cases of poisoning with the saturated liquor of the bichromate of potassa, have occurred in this city. The following has been communicated by Dr. Baer:—A laborer, aged thirty-five years, on attempting to draw off from a reftine a solution of the bichromate of potassa, in the effort to exhaust the syphon by suction, received a small quantity of the solution in his mouth. His first impression was that he had spit it out; but only a few minutes elapsed before he was seized with great heat

*Journal de Chimie Medicale.
in the throat and stomach, and violent vomiting of blood and mucus. The vomiting continued until shortly before his death, which took place about five hours after the accident.

What has now been said of the bichromate of potassa, is equally applicable to the bichromate of soda, a preparation, however, which is seldom met with out of the laboratory.

Of the Morbid Appearances caused by Poisoning with the preparations of Chromium.

The morbid appearances in the body of the individual, whose case is furnished by Dr. B., were the following:—The mucous tissues of the stomach, duodenum, and about one-fifth of the jejunum, were found destroyed in patches. The remaining parts could be easily removed with the handle of the scalpel. The lower part of the intestinal tube appeared to be healthy.

The post mortem examination of a dog, killed fifteen minutes after taking a second dose of a strong solution of the bichromate, which caused violent vomiting, exhibited the mucous tissues from the mouth throughout the whole of the prime vaæ very much thickened, and in a high degree of inflammation. At the greater curvature of the stomach immediately opposite to the cardiac orifice, the mucous membrane was gangrenous, and easily wiped off with the fingers. The muscular and peritoneal coats were also much injected.

Of the Treatment of Poisoning with the preparations of Chromium.

The chemical treatment of poisoning with the bichromates—the bichromate of potassa, and the bichromate of soda—consists in administering a solution of carbonate of potassa or soda (the latter in preference,) thereby neutralising the excess of acid to which the injury may be mainly ascribed. The subsequent inflammation is to be treated on general principles. One juridical case has come within our knowledge, being on the charge of an attempt to poison by mixing bichromate of potassa with the whiskey of a dram-drinker, in which the accused was acquitted chiefly in consequence of the uncertainty manifested by the medical witnesses as to the real properties of this, now well ascertained, virulent poison. It is this circumstance which has induced us to collect for publication, whatever appeared to be satisfactorily known of the toxical qualities of the salts of chromium.

Baltimore, Aug. 24th, 1833.
ART. IV. Physiologico-Pathological Observations on Follicular Gastro-enteritis. By E. Geddings, M. D. Professor of Anatomy and Physiology in the University of Maryland, &c.

§1. History of Follicular Gastro-enteritis.—We propose to examine the characters of a disease, which, although it has existed at all periods of the world, has not until modern times attracted much attention: we allude to the condition which has been very appropriately designated *follicular inflammation of the gastro-intestinal mucous membrane.*

That this disease should have escaped the attention of the early physicians cannot excite our surprise, when we reflect upon their want of anatomical information, and the few opportunities they possessed of examining dead bodies. Soon after the revival of letters, however, we find that the cultivators of the healing art, in their zeal to extend the boundaries of the science, and multiply its principles, busied themselves in the investigation of the properties of the organization, and availed themselves of every opportunity to determine the changes impressed upon it by disease.

Peyer,* who first furnished a good description of the mucous glands of the intestines, supposed that they might become choked up with viscid tenacious mucus, and thus give rise to diarrhoea and dysentery. Horstius† found the intestines of an individual who had died of dysentery, supervening upon small pox, covered with numerous papillae, possessing all the characters of the variolous eruption. Bartholin‡ also reports a case of dysentery where the individual passed much mucous and purulent matter by stool, in which an infinity of small pustular tubercles were found disseminated over the surface of the mucous membrane of the intestines. This condition was also particularly noticed by Brunner, Bassius, Plater, Panarolus, Valsalva, and Morgagni.§

But while these early votaries of pathological anatomy carefully examined this tuberculo-pustular condition of the mucous follicles, they did not properly comprehend their character; some attributing them to obstructions proceeding from viscid or putridous humors; others ascribing their origin to a closure of the

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§ Morgagni de sedibus et causis morborum, Lib. iii. Epist. xxxi. 13, 14, 15, Lib. v. Epist. lxviii.
orifices of the lacteal vessels: while in some instances they were regarded as possessing all the characters of the variolous eruption. Even the philosophic Linne, whose acute observation they did not escape, considered them as of a specific character, and attributed to them the development of dysentery. Hence, in speaking of that disease, he observes, "dysenteria epidemica scabies est intestinorum interna, ut ex dissectionibus cadaverum dysenteria defunctorum patet."

That these lesions were of frequent occurrence is evident from the fact, if such evidence were wanting, that in the only two bodies which were examined by Pringle, of those who died of the dysentery in Flanders, in 1744, both presented numerous traces of intense inflammation of the mucous membrane of the intestines. In the first, who died on the fourth day, the large intestines were of a blackish color and putrid appearance, the coats preternaturally thickened, and on the inside ulcerated, especially in the rectum and lower part of the colon, where the villous coat was either abraded, or changed into a corrupted slimy substance of a greenish cast.

In the second, who only survived three or four days after his admission into the hospital, the rectum was putrid, and from thence the gangrene seemed to have spread itself to the colon, which was mortified, and chiefly at its lower end. The villous coat was partly consumed, and what remained was blackish, tender, and easily to be separated. The muscular coat had the appearance of a preparation well injected with red wax: part of the cæcum was also mortified.

There can be but little question of the existence of follicular inflammation of the mucous membrane in both these cases, accompanied, however, with the same form of diseased action in the intervening portion of that structure. This is rendered probable by the presence of the ulcers, the abrasions, and the softening of the tissue; the latter of which we presume to have been the condition represented by Pringle, under the appellation of mortification. In a case of dysentery, however, which was subsequently examined by the same author in London, the evidences of the tuberculo-pustular condition of the follicles were unequivocal.

The subject of this case was a man, aged forty-six, who had lived freely, until within about three years of his death, and had been subject to frequent attacks of fever. From this, however, he was relieved by a tetter breaking out on several parts

* Ame nitat. Acad. Tom. v. Dissert. lxxii.
of his body. After continuing in this state for some time, he was attacked with dysentery, commencing with sickness and heat at his stomach, gripes, tenesmus and looseness. He died on the twentieth day, but for some time before his death, the gripes and tenesmus had ceased; though motions continued more frequent than ever, and more watery and bloody.

The coats of the ileum, where it joins the cæcum, were found thickened and somewhat softened. The rectum and colon were of a purple black color, externally. The inner surface was also as black as a coagulum of blood, and the coats were thickened. The mucous membrane was covered with a dark colored bloody slime, which was most abundant in the rectum. The blood did not seem to have come from any ruptured vessel, but to have gradually oozed through a number of fine pores into the cavity of the intestine. The blood and mucous having been cleared away from the inside of the cæcum, colon, and rectum, a number of protuberances of a lighter color than that of the rest of the surface, were observed. They were of a roundish figure, nearly equal in their height, which was about the twelfth part of an inch, but of an unequal breadth. They resembled, very closely, the small pox, of a flat sort, at the height of the disease. These eruptions stood as thick on this tract of the intestines, as variolus pustules, when numerous, do upon the skin; but differed from them in this, that as far as they were examined, they were of a firm consistence without any cavity.*

Pringle goes on to state, that Mr. Hewson, who prosecuted this examination for him, had sometime before met with a similar condition of the mucous membrane of the large intestines.—The tubercles were even more numerous than in the preceding case, and were mostly seated in the lower part of the colon.†

It has been incidentally mentioned by Cleghorn, in his account of the epidemic diseases of Minorca, who states, that in those who died of dysentery, besides other lesions, he frequently found "scirrhous tubercles straitening the cavity of the colon in several places."‡ It may perhaps be urged, that there is nothing in common between these scirrhous tubercles of the mucous membrane and the diseased state of the follicles. Those, however, who have had repeated opportunities of examining dead bodies,

† Ibid. p. 220.
‡ Rush's edition, p. 144.
Geddings on Follicular Gastro-enteritis.

must be sensible of the invalidity of this objection. Although the inflamed follicles are at first small, and scarcely perceptible, when kept for some time under the influence of irritation, and the consequent modifications to which it gives rise, their own structures not only become hypertrophied, but a similar change takes place in the adjacent tissues, and such an augmentation of volume is developed, that they form tumors of considerable magnitude. Such examples have frequently fallen under our own observation, in which the origin of these tumors could be so satisfactorily traced to a disease originating in the follicles, as to leave not the slightest shadow of doubt relative to their true characters.

But be this as it may, the condition under consideration is unequivocally represented by subsequent observers to be a frequent concomitant of dysentery and other diseases. It is stated by Haller,* that in a woman, aged sixty-four, who had been much troubled with worms, and a bleeding of the nose, and who finally died dropsical, "in ventreculi parte pyloro proxima decem vel duodecem tumores furent, papillae similes, hemispherici. Apex aut niger, aut omnino perforatus erat, cavitas pure plena, moles varia ut diameter in alis papillis sere trium linearum esset in alis integri pollicis." He was uncertain whether these tumors had originated from the erosions of the worms, a considerable number of which was found in the alimentary canal, or from an obstruction of the mucous crypts or follicles: but states as a remarkable fact, that the powers of digestion were but little disturbed.

Sir George Baker, moreover, who described the epidemic dysentery which prevailed in London, in 1762, states that the villous membrane of the rectum, colon, cæcum, and occasionally part of the ileum, was more or less reddened, velvety granular, and accompanied by numerous small bodies like small pox pustules, but harder and solid when divided, and fungous eminences. In one case, four or five perforations had taken place in the transverse arch of the colon.† Donald Monro also states, that in persons cut off by old dysentery, the villous membrane of the rectum and colon are inflamed, with livid spots, especially in the arch of the latter, and that in one seized by violent pains

* Opuscula, Pathologica, Obs. xxvii.

5* v.1
of the bowels, two days before death, the ileum was reddened. In other cases, the colic mucous membrane, as high as the valves, was occupied by livid or black spots of various size, occasioned by black blood in the submucous cellular tissue, and in the centre of each spot there was more or less erosion of the villous membrane. In the ileum, though there were no black spots or erosions, one or two minute red spots, and slight traces of inflammation were recognized.*

Nor is this feature in the character of dysentery, peculiar to the latitudes of central Europe. Even the Greek physicians, and especially Galen, described it as an ulceration of the intestines; and John Hunter, in his account of the diseases of Jamaica, found a tuberculated or pustular condition of the mucous follicles in every case which he examined, where the individual had died of that disease. He describes them as true pustules, though they contain no purulent matter, and represents them as seated beneath the villous coat or the submucous tissue. Each pustule, though at first small, round and reddish, not more than the one-tenth of an inch in diameter, gradually enlarges until it attains the diameter of one-fourth of an inch, becoming at the same time paler. In this stage, a minute crack or fissure appears at the top, and gradually enlarges, when the contents of the pustule are found to be a cheese-like substance. As the opening enlarges, the edges become prominent, the base grows rough, and matter, sometimes tinged with blood, oozes from it. This is the progress of one pustule or tubercle; but they are generally in clusters, and may coalesce and form an unequal ulcerated surface, with a hard thickened base.† Stark has also described and delineated this state of the mucous membrane.—In two cases of fever, one intermittent, the other protracted, followed by griping and purging, he found the villous membrane covered with numerous elevations and depressions. The former were conical, and had the subjacent cellular tissue somewhat indurated. There were also numerous small ulcers and erosions, some of which occupied Peyer's glands. Several small openings existed near the attachment of the intestine to the mesentery.‡

* Essays and Observations, Physical and Literary, vol. iii. art. 25, also an account of the diseases; &c. by Donald Monro, Lond. 1764.—Cragie.
‡ Clinical and Anatomical Observat. with experiments dietet. and statist. of the late William Stark, by James Carmichael Smyth, Lond. 1788.
Geddings on Follicular Gastro-enteritis.

Since this period, observations proving the frequent occurrence of follicular inflammation in dysentery, diarrhoea, and other diseases of the bowels, have been so multiplied that it would be an act of supererogation to detail minutely the results of the researches of different individuals. From what has been revealed by the labors of modern pathological anatomists, it may be stated that it participates more or less in all the gastro-intestinal affections, and there are few of them that are at all protracted, in which the follicles are not found after death, either more or less inflamed, hypertrophied, ulcerated, in a state of suppuration, or even gangrenous. To this point we have the concurrent testimony of nearly all modern pathologists, and in reference to dysentery especially, those of Farquhar, Bampfield, Ballingall, Bailie, Annesley, Cheyne, O'Brien, Latham, Abercrombie, Cragie, and numerous others, of the English, not to mention nearly all the latest pathologists of France, Germany, and other countries where medical science is diligently cultivated.

But it still remains for us to consider the history of follicular inflammation of the gastro-intestinal mucous membrane in more important relations: we mean in connexion with those diseases which have been generally described by writers under the appellation of essential fevers.

That the numerous affections which have been usually grouped under this head, have been in all periods of the world attended with follicular gastro-enteritis, we are authorized to conclude from the frequent coincidence of these conditions discovered by modern pathologists. Occasional references were, indeed, long since made by different writers to the connexion of fever with an inflamed and ulcerated state of the mucous membrane of the stomach and intestines, but it was not until about the middle of the last century, that any very special observations were made relative to the implication of the mucous follicles in that disease. In 1760, an epidemic fever prevailed at Göttingen, with great mortality, in which the predominant symptoms were those which characterize an affection of the gastro-intestinal mucous surface, which was found extensively implicated after death. An admirable description of this epidemic was drawn up by Roederer and Wagler, which they designated morbus mucosus, from its most prominent feature, and to their researches we are indebted for the first clear description of the intimate relationship which sometimes exists between fever and follicular gastro-enteritis.

They found the stomach and intestines, especially the small,
lined internally by a thick layer of viscid tenacious mucus, beneath which there were innumerable follicles, with their sum- mits elevated, widely disseminated over the surface of the mem- brane, all of which were choked up with mucus.

The external surface of the stomach was inflamed, and its substance, which was of a red color, was traversed by large vessels. It contained a considerable quantity of a thin, darkish colored, heterogeneous mucus. Its substance was thickened; the muscular coat of a red color and thickened; the nervous white and te- nacious; the villous somewhat thickened, variegated, and poste- riorly, near the lesser curvature, of a pale fuscous hue. There were disseminated upon the same portion of the membrane an infinity of whitish colored pustules, which at first resembled those of an aphthous character, but which in truth were en- larged mucous follicles, flattened and compressed upon their summits, nearly all of which presented a small contracted or- ifice, communicating with the cavity of the stomach. These points were occupied by a delicate flocculent membrane, remark- ably friable in its structure, and of a whitish color, which adhered to the internal surface of the stomach, but which could be easily washed away. The membranous shreds or fragments resembled those which are observed in aphthous affections.—Nothing else was manifest, except a very delicate epidermis which covered the villi, and from the abrasion of which proceeded the membranous flocculi. In this portion of the stomach, the villi were not very conspicuous, and the villous membrane was thinner than at other points; but the follicles were preter- naturally large, and apparently naked. A little lower down, where the stomach was intensely red, the follicles were more sparse in their arrangement. The fundus of the stomach, along the greater curvature, was occupied by a number of prominent rugæ somewhat reticulated in their arrangement. The villous coat was thickened and tunnelied, but not abraded. Nearly the whole internal superficies of the stomach was covered with mu- cous follicles less depressed than the others, but filled with an ash colored, inspissated matter. The elevation of these follicles was greater than their diameter: they were globose, uniform upon the surface, lenticular, but slightly prominent, surrounded by a rounded margin, and in the central part of the summit of most of them, there was a small fovea directed towards the cav- ity of the stomach; in a few of them, however, this aperture did not correspond to the centre. In their general configur- ation, they were not unlike the papillæ of the tongue, except
that the latter are much smaller, and have a more minute aperture at the summit. The external part of each follicle corresponded to the cellular tunic of the organ; the internal to the cavity, into which it projected.

Their volume was variable. Some of them were more than a line, others a line, and some of them less than a line in diameter. They were most abundant in the vicinity of the pylorus, where the membrane was less rugose, and were, indeed, so thickly crowded together, that many of them were in direct contact, and as it were confluent. They were more sparsely arranged in other portions of the stomach: they were smaller upon the summits of the rugae of the mucous membrane, and occupied one or the other of the margins of the pyloric valve, but did not exist in the intermediate fovea. In the duodenum, near the pylorus, and between the rugae of its mucous membrane, as well as upon the rugae themselves, there were many of them which were very prominent, as though inflated, and some extended out longitudinally: others were simply protuberant. The orifice upon the summits was distinctly marked by a small black point. The elongated follicles were so disposed, that their free extremities, which were perforated, were directed towards the duodenum. They projected like prominent papillae from the surface of the villous membrane, and followed for the most part, the course of the free margin of the valvulae conniventes. The internal surface of that part of the alimentary canal, situated below the pylorus, and in the vicinity of the gall bladder, was studded over with many prominent follicles: in the intervals, the mucous membrane was of a pale brown or red color. The intestines were of an ashy green color, and exhibited a congested state of the vessels, with obscure evidences of inflammation upon their external surface. —In the small intestines, there were some worms; —the mucous membrane was of a reddish color, less flocculent than at other points, and for the most part healthy. The internal coat of the large intestines was tumid and thickened, of a dark red color, rough, rugose, and covered with eschars, and was, throughout nearly the whole of its extent, in a similar condition to that which is observed in dysentery, with the exception that its integrity of continuity was less injured.*

It is also stated by these authors, that the same pustular condition was sometimes observed in the uterus and vagina.

We have translated these long extracts from Röderer and

*Röderer et Wagler, de Morb. muc. p. 342.
Wagler, because it is the first satisfactory description of follicular gastro-enteritis, connected with that form of disease which has been generally denominated essential fever, and also, because in most particulars, their account of the condition of the mucous membrane in that disease, is as clear and satisfactory as any which has been subsequently furnished. Of the general characters of the disease, so ably delineated by them we shall have occasion to speak in another part of these observations.

Following up the history of this affection, we next find it prevailing at the Hotel Dieu, of Paris, not that it was in the mean time extinct, or had not prevailed at all periods of the world; but because writers on the subject of fever, either made no post mortem examinations, or conducted their researches in such a careless manner as to overlook, for the most part, the follicular gastro-enteritis, which doubtless often co-existed with the disease of which their patients died. Indeed, carried away by the belief that fevers were universal diseases, perfectly independent of any local affection, they did not deem it necessary to search for lesions after death, of the existence of which they entertained no suspicion during the life of the individual. But that such lesions did exist in many forms of fever described by authors, we shall endeavor to render apparent in a subsequent part of these observations, by drawing a parallel between those fevers in which modern researches have demonstrated that follicular gastro-enteritis performs an important part, and those which have been described under the appellation of typhus, putrid, malignant, adynamic, ataxie, ataxo-adynamic, gastric, mucous, bilious, gastro-adynamic, nervous, &c. &c. from which it will be seen that there is a strong coincidence in the general symptoms.

In 1804, Prost described very accurately the characters of follicular gastro-enteritis, under the appellations of adynamic, gastro-adynamic, and ataxie fevers, of the first and second degree; and it is stated by Breschet, that in 1806, a kind of epidemic enteritis prevailed to great extent within the walls of Hotel Dieu, the victims of which exhibited a pustular condition of the intestines.* We are, however, informed by Cruveilhier, that in 1812, the period at which he was Interne of that institution, the co-existence of organic lesions and fevers of a bad character had become there an old tradition, and that himself and his fellow-students, wearied with the usual vague names of

* Archives Generale, 1824, p. 619.
inflammatory, bilious, mucous, adynamic and ataxic fevers, and seeing the same disease put on, alternately, all these characters, applied to them all the name of intestinal fevers.* They were at that time at a loss to determine what relationship these lesions bore to the fever—whether they should be regarded as the cause or the consequence; "but the doctrines of irritation," observes M. Cruveilhier, "have since raised one corner of the veil, and our only embarrassment at present, is, to determine the true method of treatment, which has not yet been found out."

This same epidemic fever was described by Petit and Serres, the former of whom was one of the physicians of Hotel Dieu, in 1813, as a special disease, which they denominated enteromesenteric fever. A constant characteristic of this affection was a pustular condition of the mucous membrane of the small intestines.† That it was neither a new or a special disease, however, is manifest, from the assertion of Pinel, as well as from the identity of its phenomena with those presented by fevers which had been repeatedly observed. The author just alluded to, declares, in speaking of that disease, that there are no grounds for making it a distinct form of fever, but that it should be merely regarded as an inflammation of the intestines, and not as a special disease.‡

But of all those who first described the relationship of fever with follicular gastro-enteritis, Bretonneau, a distinguished physician of Tours, in France, unquestionably contributed most to direct attention to the subject. He conceives it to be a peculiar disease of a contagious character, seated in the glands of Peyer, which in consequence of the pustular appearance of these latter organs, he denominates Dothinenteritis, or Dothinentery, from δοθην, pustula: and ἔντερον, intestine. He has treated its characters with great diligence, and has furnished a very faithful exposition of the phenomena manifested during its progress.§—
The interest awakened by the publication of his opinions has led to a more careful examination of the subject, and it has been ascertained by the result of subsequent researches, that the diseased state of the mucous follicles very frequently exists in fevers of different grades. Not to mention Broussais and the other individuals whose names have already been referred to, follicular gastro-enteritis has been since particularly noticed and de-

† Petit et Serres Traité de la Fievre Entero-mesenterique, Paris, 1813.
‡ Nosographie Philosophique, tome i, p. 408.
§ Trousseau Archives Generale de Medicine.
scribed by Latham, (1,) Bally, (2,) Ouvrard, (3,) Cruvielhier, (4,) Andral, (5,) Louis, (6,) Hewitt, (7,) Gendrin, (8,) Billard, (9,) Hufeland, (10,) Bischoff, (11,) Neumann, (12,) Lesser, (13,) Boisseau, (14,) Scoutetten, (15,) Roche, (16,) Bouillaud, (17,) Armstrong, (18,) Horner, (19,) Bright, (20,) Jackson, (21,) and many other writers of high respectability. Indeed, since the wide extended prevalence of epidemic cholera, this condition of the mucous membrane of the stomach and intestines, has been much more frequently recognized than formerly, and few who have instituted careful examinations of the bodies of those who have fallen victims to that malady, have not had occasion to see the follicles enlarged, inflamed, ulcerated, or otherwise diseased.

Within the sphere of our own observations, follicular gastro-enteritis has been of frequent occurrence. Having had numberless opportunities of making post mortem examinations, we have not only found follicular inflammation of the gastro-intestinal mucous membrane a very common accompaniment of various forms of fever, and especially those which have continued beyond a few days, but likewise in epidemic cholera, cholera mor-

(1) Description of the disease which prevailed at the Millbank Penitentiary.
(3) Reflexions de Med. Pratique, 1811.
(5) Clinique Medicale, tome i. p. 469.
(6) Recherches sur la gast. enterite, tome i. p. 196.
(8) Histoire Anatomique des Inflammations, tome i. p. 587.
(9) De la memb. muqueux, p. 432.
(10) Journal der Hielkunde, 4 stuck, 1830.
(11) Grundsätze der Erkentness und Behandlung der Fieber, und der Entzundung, Wein. 1830.
(14) Boisseau Pyretologie Physiologique.
(20) Reports of Medical Cases, &c. 2 vol. 4 to.
bus, cholera infantum, diarrhoea, dysentery, phthisis pulmonalis, scrofula, and many other diseases. The outward phenomena to which it gives rise are variable, according to its seat and intensity, the period of its duration, the constitution and habits of the patient, and other circumstances.

2. **Anatomical Characters of Follicular Gastro-enteritis.**

Follicular gastro-enteritis may present itself either under an acute or chronic form; and although all portions of the alimentary canal are not equally liable to become affected, there is no part which can be considered as entirely exempt. It is most frequently met with in the lower part of the ileon, in the caecum, and the commencement of the colon, though it is sometimes observed in the stomach, and other portions of the small and large intestines.

If the acute pustular form of the disease be carefully investigated, from the period of its commencement to its termination, it will be found to present itself under four different forms, which are generally very distinct in their leading characteristics. The first of these is the *granulated,* or *honey-comb appearance,* (plaques Gaufrées Cruveilhier;) the second, the *pustular* or *suppurative,* the third, the *gangrenous,* and the fourth, the *ulcerative.* Other characters are often superadded, which merely mark the transitions from one stage of the disease to another;—such, for example, as a ramollissement, or induration,—a fungous or flocculent condition of the summits of the diseased glands, hemorrhage from their apex, and various other trifling modifications.

In the first stage, a portion of the mucous membrane, generally of the lower part of the ileon, is observed to be more or less thickly beset with a number of small granulations, varying in magnitude from the size of a grain of millet, up to the volume of a split pea, which project above its surface, and in some cases simulate very closely the characters of an exanthematic eruption. These small bodies are sometimes solitary, but more frequently agminated, or disposed in clusters of considerable extent. Under these circumstances, those who have observed the resemblance between the diseased intestinal glands and the variolous eruption, have compared the first to the distinct; the second to the confluent small pox.*

When the granulations are clustered together, they are generally elevated above the surface of the membrane, and each

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* Cruveilhier, op. cit. p. 3.
one presents itself in form of a hard prominent spot, rendered rough and uneven upon the surface by the summits of the enlarged glands, which are flattened upon their extremities, or even depressed in the centre, and thus give rise to an arrangement which has not been unaptly compared to a piece of honey comb with its cells closed.*

But should the disease be confined to the solitary glands or follicles, the tumors will be found perfectly isolated, and but sparsely disseminated over the surface of the membrane. The intervening spaces are sometimes healthy,—sometimes variously colored by vascular injection, and the tumors formed by the glands themselves are larger than those which are disposed in clusters. The centre of the small depression which occupies the apex of each tumor, is generally marked by a minute dark colored speck, which corresponds to the orifice of the diseased follicle.

In a more advanced stage of the disease, this speck or orifice becomes ragged or flocculent, in consequence of the commencement of the ulcerative process. If one of the small pustules be now cut into, it will be found considerably thickened and injected with blood, especially about its base, and in many cases its cavity will be filled by a viscid, tenacious, or even a concrete mucus, which can sometimes be pressed out through the orifice of the glands. Occasionally, nearly the whole volume of the tumor will be found softened, and its cavity filled with a reddish colored fluid, of a thin mucous consistence.

When the disease has advanced to the second stage, still more important changes are developed. The small tumors become larger and more conspicuous; their base more extended, and the centre of each depression now exhibits a distinct, grayish colored, irregular point, which corresponds to the orifice of the follicle. If the disease be confined to the glandular clusters of Peyer, the portion of the mucous membrane which is involved, is frequently elevated above the level of the surrounding portion, in form of obround, or oval spots, which are generally isolated, but sometimes they run together, and form stripes or bands which occupy a considerable part, or the whole of the circumference of the intestine. Sometimes only one or two of the small follicles, situated within the compass of these spots, are enlarged and pustular, while most of the others retain the characters of the first stage of the disease, or present only a very slight deviant from their natural state.

* Cruveilhier, op. cit. p. 3.
Frequently, the disease is confined to the solitary glands or follicles; and in such cases the small tumors are generally rounded, lenticular, and perfectly isolated from each other; the adjacent portion of the membrane being but little changed. In all cases, nevertheless, the consistence, and the secretory powers of the diseased follicles, are much modified: sometimes they undergo a simple process of *ramollissement*, by which their texture is rendered so fragile, that they may be broken down by the slightest force. In such cases, they are generally of a dirty red color, and contain a fluid not dissimilar in its general aspect to the lees of wine. More frequently they are hard and prominent upon the margin, which is often surrounded by a slight reddish colored areola, or hoop, while in the centre they exhibit a ragged, uneven, flocculent appearance, occasioned by the commencement of ulceration in the orifice of the glands. If they be pressed, a muco-purulent fluid will be forced out, sometimes mingled with small concrete masses, similar to those which are formed in common furunculus. The purulent character of their contents will be particularly manifest, if the pustules be cut open, and compressed under water.

In some cases, instead of this muco-purulent fluid, the follicle contains a small coagulum of blood, deposited in consequence of an abrasion of some of its minute vessels. The sub-mucous cellular tissue in the vicinity of the diseased points, is always more or less thickened, and the mucous membrane, though frequently of its natural color, very commonly exhibits a red, brown, gray, or violet hue, in the vicinity of the diseased spots. Under these circumstances, the process of suppuration has become fairly established, and if the matter cannot find a ready exit, small abscesses sometimes form, which burrow beneath the neighboring portion of the membrane, and occasion a considerable destruction of its substance.* When the suppurative process has advanced considerably, the orifice of the follicle frequently takes on a flocculent or fungous character; and if a considerable extent of the membrane be affected in that way, it assumes a peculiar spongy appearance.

Under some circumstances, the inflammation of the internal structures of the glands run on to complete disorganization, and more or less of their substance becomes involved in a gangrenous slough. This constitutes the third stage of the disease, which always presents a formidable character.

*Crueilhier, op. cit. p. 3.*
Sometimes the gangrene is of limited extent, and merely consists of a small slough, involving the orifice of the follicle, and a small portion of its substance. This is frequently thrown off in form of a small whitish, grayish, or dark colored mass, similar to those which are formed in a carbuncle. These frequently involve the submucous cellular tissue, and lay bare the muscular tunic; and it sometimes happens, in the separation of the diseased mass, that one or more small blood vessels are abraded, which pour out more or less blood. More frequently the slough is larger, and implicates the entire extent of one or several of the diseased follicles, and even a portion of the adjacent mucous membrane; the whole being detached in one continuous eschar, leaving behind a considerable excavation, or even carrying with it the corresponding portion of all the other tunics of the intestine, and thus giving rise to a complete perforation of its walls. In some instances, the entire circumference of one or several of the honeycomb like patches or clusters, are thrown off in form of a slough, leaving the internal surface of the organ rough and excavated, with its blood vessels denuded, and sometimes so much eroded as to give rise to a profuse intestinal hemorrhage. In such cases, the margin of the mucous membrane, from which the slough has been detached, is generally uneven, ragged, and flocculent, and is occasionally separated from the tunics which are situated beneath it.

The fourth stage of the disease is characterised by ulceration commencing either in the orifice of the follicle, or at the bottom of its cavity. It may succeed either of the conditions which have been described, but is especially a frequent sequel of the suppurative and sloughing conditions.

The ulcers are frequently small and isolated; sometimes clustered and confluent, and varying in magnitude from the size of a pin’s head up to one inch or two inches in diameter. Frequently, indeed, they involve the whole extent of the honeycomb-like patches, and not only destroy the clusters of the glands of which they are composed, but disorganize the subjacent cellular and muscular tunics of the intestine, lay bare and erode the blood vessels, and not infrequently occasion a perforation of the tube. The edges of the ulcers are generally irregular and prominent, with the bottom of the excavations which they form rough and callous.

While these conditions are observed in the mucous glands and follicles, the surrounding portion of the mucous membrane is found in various states; being in some cases of its natural
healthy appearance, but very often marked by indications of inflammation. In some cases, it exhibits slight traces of vascular injection. These are often more diffused, and where the disease is of long standing, the membrane frequently assumes a dark brown or violet color. It is frequently softened; sometimes thickened and indurated, and occasionally disorganized to a considerable extent. The peritoneum, also, frequently presents manifest traces of inflammation, so that, in some cases, the existence of follicular inflammation may be almost detected before the intestine is laid open.

Another fact worthy of remark, relative to follicular gastro-enteritis, is, that the influence of the disease is frequently propagated to the mesenteric glands. The irritation seems to extend from the mucous membrane along the lymphatic vessels; the glands inflame and become enlarged, and form small rounded or oval tumors, varying in magnitude, from the size of a pea, up to that of a common prune. They are, moreover, sometimes red and apparently congested with blood, without being increased in size; but more generally, they are enlarged and indurated, or softened and broken down into a darkish, red colored, diffusent mass. Occasionally, each diseased gland represents an abscess, either containing a bloody or light colored purulent matter, or filled with fragments of disorganized tuberculous substance. The whole chain of mesenteric glands may be involved in this condition; but those which are most frequently affected are that portion of them situated near the junction of the ileum with the cæcum, and those which occupy the mesentry of the former intestine.

Although this diseased condition of the glands is secondary, and is generally in relation with the intensity of the disease of the follicles, it has been remarked by Cruveilhier, that in some cases no such relationship exists; the affection of the glands constituting the principal lesion, and bearing a direct proportion, as regards degree, to the outward symptoms of the malady.

It has been questioned by some pathologists, whether the ulcers of the gastro-intestinal mucous membrane are susceptible of being cicatrized. Those who have supposed such an event impossible, have probably not directed much attention to pathological researches; and have, doubtless, been more actuated by speculative views, than actual observation. The records of the science furnish numerous cases in which ulcers of the gastrointestinal mucous membrane have been found cicatrized or

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healed. Cases of this kind have been reported by Forestus, (1) Schenkius, (2) Layard, (3) De Haen, (4) and others. In the body of a woman who had been affected for a length of time with frequent vomiting, colicky pains, and bloody purulent discharges by stool, Reil (5) found that a portion of the mucous membrane of the stomach, of the size of a dollar, had been entirely destroyed, but that the part had cicatrized, and contracted an extensive adhesion with an enlarged mesenteric gland. In the description of Meckel's Anatomical Museum, a similar case is reported. The ulcer occupied the lesser curvature of the stomach, and the cicatrized portion, which was hard and somewhat radiated, presented an excavation of about two lines in depth, bounded by indurated borders. All the tunics of the organ, except the peritoneal, seemed to have been perforated. (6) This process of reparation was long since noticed by Donald Monter, in his treatise on dysentery, and the manner in which it is accomplished has been well described by Petit and Serres, Latham, Billard, Troillet, Andral, Cruveilhier, Abercrombie, and several other modern pathologists. In his account of the epidemic which committed such ravages in the Millbank penitentiary, Latham states that several cases were observed in which the process of cicatrization had commenced in the ulcers of the gastro-intestinal mucous membrane. "One, two, or three small spots were found, corresponding in shape and size with the smaller ulcers which have been described, where there was no remaining character of ulceration, but the mucous membrane was apparently drawn and puckered, and its continuous smoothness interrupted. At these spots closer inspection, by the help of a lens, discovered a circular margin, which was slightly elevated, inclosing a space somewhat depressed. This space had a reticulated appearance, formed by minute white filaments of lymph, crossing each other in various directions, among which small red blood vessels were visible." In some cases, the corresponding portion of the peritoneum exhibited a puckered appearance, though the surrounding mucous membrane presented no unusual vascular injection. In most cases, coagu-
lable lymph is freely deposited upon the surface and around the margins of the ulcers, the latter are fastened down, as it were, to the adjacent structures; and the process of organization advances, granulations spring up from the bottom, the contour of the ulcer contracts, and it is finally cicatrizied either by an approximation of its borders, or by the development of a new structure which supplies the place of the loss of substance sustained by the mucous membrane. In two very satisfactory cases detailed by Troillet, "the ulcerations were of an oval or round form, varying in diameter from six to ten lines, with fringed edges, and surrounded with a brownish circle, beyond which the mucous membrane was sound. Their surfaces presented the following marks of incipient, advanced, and complete cicatrization. Those in the first stage were covered with a fine pellicle, transparent even after being washed or scraped with a scalpel. It was in some degree movable on the subjacent cellular tissue. In other ulcerations, where the work of regeneration was more advanced, the pellicle was thicker, slightly opake in some parts of its surface, and amalgamated, as it were, with the fringed edges of the sore. In those ulcers where cicatization was nearly completed, the pellicle had acquired the thickness, the consistence, and the aspect of common mucous membrane. In those parts where the healing process had advanced to the greatest degree, the fringed condition of the edges had entirely disappeared, the surrounding circle was of a faint color, or in some places annihilated, and the mucous membrane was completely regenerated. These regenerations were more numerous at the upper part of the ulcerated portion of the ileum."* Cruveilhier† has delineated several cases in which ulcers of the stomach, of considerable magnitude, were found completely cicatrized, with the surrounding portion of the mucous membrane exhibiting a puckered appearance. In one of these cases, the ulcer was of two or three inches in extent. The cicatrix was always composed of a dense fibrous structure, and never presented the proper characters of the natural tissue.

From the foregoing observations, (and many others of a similar kind might be adduced,) it clearly appears, that ulceration of the mucous membrane of the stomach and intestines, whether it be seated in its follicular or villous portion, is susceptible of be-

ing cured by the same acts of the organism that are instrumental in the reparation of similar lesions of other structures of the body. Such a reparation, however, is always difficult to accomplish; for the surface of the ulcer being constantly exposed to the heterogeneous contents of the organ, the salutary changes which are set up by nature for its accomplishment, are too frequently thwarted. But notwithstanding these obstacles, the restorative powers of the system, when aided by proper regimen and appropriate treatment, finally triumph, and the individual after suffering for months, or even years, from all the misery inflicted by chronic gastro-enteritis, may be restored to health. A conclusive instance of this kind is furnished in the case of the lamented Beclard, whose stomach, after death, presented an ulcer perfectly cicatrized.


Having shewn that inflammation of the mucous follicles has been long and repeatedly observed by authors, as a concomitant of many diseases apparently dissimilar in their characters, and that in some of them it constitutes a constant condition;—having, moreover, traced out its anatomical characters, and described the consequences to which it leads, so far as the structures of the organs primarily implicated are concerned, it still remains for us to make a more extensive application of these facts:—to consider the relations of the lesions which have been noticed with the functional disturbances which are developed during their progress; to investigate the modifications of the vital acts of the organs which are concerned in their evolution, or roused up by them after they are formed; to determine their individual relations, and to fix as far as possible the regular order of succession, manifested by the various morbid phenomena, the assemblage of which constitutes the disease itself. This, it must be confessed, is a difficult task: but it is only by obtaining a correct solution of the questions growing out of these points of inquiry, that we can arrive at any accurate pathological conclusions, and, consequently, secure to ourselves any certain and fixed principles to direct our therapeutic procedures.

If we regard, with most of the older authors, every group of symptoms, or train of outward phenomena manifested by morbid action, as constituting so many distinct diseases, it will be apparent, from what has been already stated, that follicular gastro-enteritis coexists with an infinity of human maladies, many of
which, were we to be guided by the external characters which they present, we should pronounce to be altogether dissimilar in their characters. But if, in accordance with the improved condition of modern pathology, we cease to consider diseases and symptoms as distinct and independent entities, and view the first merely as *organico-vital* modifications, developed in the living tissues by the operation of unfriendly agencies upon their susceptibilities, and the second as their outward manifestations, arising either from a disturbance of the nutritive or functional acts of the organ or system primarily implicated, or from similar disturbances awakened in others with which it is associated, through its chain of sympathies, we shall find, that so far as the primitive diseased organic condition is concerned, where follicular gastro-enteritis exists, the fundamental character of the disease is the same, however diversified the symptoms by which it is characterised. This diversity grows out of the part of the membrane which is affected; the intensity of the inflammation, its extent, the condition of the system at the time, the modifying influences to which it is exposed; but above all, the number and extent of the complications, either existing at the time of its formation, or developed during its progress. These are the principles which regulate the functional disturbances manifested in the course of every disease, and the danger of the malady is always regulated by its intensity, the number and importance of the organs to which its influence radiates, and the capability of the living organism to sustain its integrity under the influence of the perverted actions to which it is submitted.

It must not be inferred from these observations, that we regard follicular gastro-enteritis as the primary condition in all the diseases in which it occurs. An investigation of its phenomena clearly demonstrate, on the contrary, that in a great number of them it is secondary, and merely constitutes an accidental complication; the cause of the malady having first spent its influence upon some other tissue or organ,—there rousing up a train of morbid actions, which through a chain of sympathies, either direct or indirect, extend their influence to the mucous surfaces, giving rise to a similar condition of the follicles, which merely becomes superadded to the original affection as a secondary condition, or adventitious complication. This secondary condition once developed, may either continue to coexist with the primary;—it may supplant the first by transcending it in intensity, or both may give rise to other modifications by implicating other tissues or organs, and thus additional complications may be superadded,
all-impressing upon the outward manifestations of the disease, characters which vary according to the parts implicated, and the intensity of the affection. The truth of these propositions will be fully confirmed by a careful analysis of many diseases. Thus, in phthisis pulmonalis, the first tangible effect of the morbid cause is felt by the lungs, or the lining membrane of the bronchial: the nutritive acts of the tissues concerned are modified or perverted; tuberculous matter is deposited; their organization becomes more or less changed; their functions are also disturbed, and corresponding disturbances are awakened in other organs through the medium of their sympathies, and what was at first purely a local condition, eventually radiates its influence throughout numerous other tissues and organs. The irritation communicated to the heart and arteries, gives rise to an excitation of their vital acts, and fever is the consequence; and a similar propagation of the influence of the disease to the gastro-intestinal mucous surfaces,—from thence to the liver, to the brain and its coverings, and to various other parts of the economy, occasions a series of organic implications, all of which modify the original condition, add to its gravity, and increase its fatal tendency. In the last stage of phthisis especially, it is found that the gastro-intestinal mucous surface becomes extensively implicated, giving rise to inflammation and enlargement of the follicles, ulceration, perforation, and in short, all the conditions which have been described as appertaining to follicular gastro-enteritis in general. This has been fully confirmed by the dissections of Louis, Andral; and others.

There is still one other consideration which should be taken into account, in investigating the influence of this, as well as of other lesions of the organs. This is the state of predisposition, and the various modifications impressed upon the organism by the morbid cause, between the period of its first impression upon the tissue, and that at which the disease, as characterised by its external manifestations, is developed. The neglect of this has led to much difference of opinion, and a great deal of vain and idle discussion: one party affirming that the disease consists essentially in the direct and immediate impression of the morbid cause upon the susceptibilities of the living organization; the other, that this should be merely regarded as a kind of prelude, or prodromous, and that the disease is not developed, until the influence of the cause has concentrated itself upon some tissue or organ, so as to give rise to some molecular modification of its structure, by impressing upon its vitalism certain abnormal
or perverted actions, by which its nutrition becomes changed. This distinction, which, at first view, may appear trivial, is of the utmost consequence as regards our reasonings upon the true nature of the disease. Many of the causes of morbid action are so subtle, and the preliminary changes excited by them in the living structures, during the period which elapses between the first reception of the impression, and the proper inception of the disease, as it becomes cognizable to our senses, are so inscrutable, that they cannot be appreciated, and we are, consequently, only able to imagine what they are, and to judge of their characters by the visible effects they produce upon the living organs. It is only after these effects have become apparent to the senses, as manifested through the symptoms which are proper to them, that we are enabled to frame, in our minds, any definite ideas of the characters of a disease with which we have to contend. There is previously disease, because there is a modification of vital action incompatible with the natural play of the organ; but its manifestations are so obscure,—its characters so inscrutable, that we cannot define what it is; and it is only after it has eventuated in the evolution of phenomena more visible, both as regards the organic implication, and its outward symptoms, that we can localize it with any certainty, or form any accurate inferences relative to its attributes. It is especially important that these principles should be constantly kept in view, in all our inquiries relative to the subject of fever. Much of the contrariety of opinion which has existed upon this subject, has arisen from a neglect of them: some only having a regard to the operation of the outward cause upon the common recipients of all impressions, which are the nerves, have maintained that fever consists in a derangement of the nervous, extending its influence to the vascular system; while others, only having regard to the ultimate local condition or conditions of the organs, have with equal pertinacity affirmed, that all fevers are the result of local inflammations. Now, the one or the other of these opinions will be correct according to the definition which is attached to fever. If the first impression, which is instrumental in the eventual development of the disease, be regarded as constituting it, before there is increased heat, frequency of the pulse, &c. which have generally been assigned by the nosologists as its characteristics, then the opinion of the first class of individuals is incontestibly correct; but if these outward manifestations be considered as indispensably necessary to constitute the disease, fever is unquestionably the mere shadow or reflected image of a local excitement or
irritation of some organ, transcending in intensity that degree in which health consists, propagating its influence to the other organs, and eventuating in those molecular modifications of the tissue which have been assigned as the essential characters of inflammation. It may not be inflammation at first, in the strict sense of the word, because inflammation merely consists of a train of phenomena, never steady in their characters, growing out of superexcitement; and as the latter is competent of itself, by acting through the medium of the sympathies, to rouse up all the phenomena which characterize a fever, even before the conditions which are called inflammation become manifest, so will it also, if allowed to continue even for a short time, terminate in, or develop, these latter conditions, and become transferred from a state of simple superexcitement into one of pure phlegmasia.

All fevers, therefore, adopting the ordinary definitions of the nosologists, are the result of the superexcitation of one or more tissues or organs, and as such superexcitation, when once developed, immediately impresses upon the part in which it occurs, all the molecular modifications which constitute inflammation, they may, without much impropriety, be said to be the result or consequence of local phlegmasia. All the other conditions which occur antecedent to the development and localization of this superexcitation in an organ, which possess sufficient influence over the others to give rise to the outward manifestations, the assemblage of which form what is called a fever, are mere preludes or a prodromous of the disease itself. However important it may be for us to be acquainted with the nature of these preliminary conditions, they can never direct our treatment after the disease is once developed; for it often happens, that the operation of a debilitating cause gives rise indirectly to a state of superexcitation, and if we were, under such circumstances, to direct our attention to the primary condition, we should often find ourselves employing energetic stimulation for the removal of an active inflammation. Whether the local superexcitement be a primary or secondary condition, it is the point to which our attention must be directed:—it is the focus upon which the whole force of the disease concentrates itself, and from which its influence is radiated throughout the other organs and systems, disturbing their functions, implicating their structures, and, if not controlled, eventuating in their destruction.
The principal acute diseases, of which follicular gastro-enteritis forms a concomitant, are fever, diarrhoea, dysentery, cholera, and *cholera infantum*. There are besides these, many others, which it will not be necessary to enumerate in this place; and of the chronic diseases, both primary and secondary, which implicate the stomach and bowels, there are few in which it does not exist to some extent.

4. Relations of Follicular Gastro-enteritis with the Essential Fevers, as manifested by symptoms.

This portion of our investigation is encumbered with many difficulties, the different shades or modifications of fever in which follicular gastro-enteritis occurs being so variable, and attended with such a diversity of outward phenomena, as to render it almost impossible to appreciate the precise relations between the lesions of the mucous membrane and the attending symptoms. We have already adverted to the connection between the common mucous fever, as described by Reederer and Wagler, and follicular inflammation. The same connection has been since observed by Sarcone, Gervasi, Cotugno, and others, in the epidemic fever which prevailed at Naples in 1764; (Boisseau;) and by other authors in the *synochus* of Cullen: the *bilious*, the *gastric*, the *bilio-gastric*, or the *meningo-gastric* of Pinel; the *pituitous*, or the *slow nervous fever* of Huxham; the *typhus*, *typhoid*, *soporose*, *malignant*, *adynamic*, *putrid*, *ataxic*, *ataxo-adynamic*, *mesenteric*, *entero-mesenteric*, *jail*, *hospital*, *ship*, and *prison fevers*, &c. of various writers.

Many of these appellations have been applied to the same form of disease, but there are others which have been employed to designate modifications of febrile action attended with such a dissimilar train of symptoms, that they have been regarded as separate and distinct diseases. It is not our intention, in this place, to discuss the propriety of this course; but it will readily be inferred from what we have stated in reference to the relations between the diseases called essential fevers and local phlegmasia, or rather local superexcitation, that we consider all the varieties observed in their external manifestations to be dependent upon the particular organs implicated, and the different degrees in the intensity of their sufferings. As, therefore, our limits will not admit of our making an examination of the relationship between follicular gastro-enteritis and all the forms of fever which have been enumerated, we shall confine our observations chiefly to those forms which have been generally de-
Geddings on Follicular Gastro-enteritis.

nominated typhoid, typhus, slow nervous fever, adynamic, &c. which differ but slightly in their general phenomena, and which have been observed to be most frequently connected with the particular lesion under consideration.

In forming an opinion in relation to the exact connections which exist between follicular gastro-enteritis and the diseases or symptoms in which it occurs, it will be useful to determine, as far as practicable, the period of the malady at which the lesion becomes manifest. This cannot be easily done in many diseases, especially in fevers, diarrhœa, dysentery, cholera infantum, &c. because the malady seldom assumes sufficient intensity to destroy life until some time subsequent to the development of the tuberculo pustular condition of the follicles. The recent frightful ravages of epidemic cholera, in different parts of the globe, have, however, afforded ample opportunities for acquiring information upon this point, which did not previously exist. That disease frequently attacks with such violence, that in the course of two or three hours it terminates in death, and a favorable chance is thus afforded, by considering the aggregate lesions which are observed in a number of bodies, and comparing them with the symptoms, to determine the relationship of the one with the other, and the position they occupy, in the scale of cause and effect.

Turning our investigations, therefore, in this direction, and regulating them by these principles, if in a series of cases thus cut off, as it were, at the very onset of a disease, we recognize a certain set of organic lesions common to them all, presenting themselves in all cases, which bear a constant and unvarying relation to the functional disturbances or symptoms manifested from its onset to its termination, it certainly must be considered bad philosophy to close our senses against such evidence; to regard the lesions as merely accidental, and instead of ascribing the symptoms to them, to refer them to some inscrutable incomprehensible condition of the vital powers, shut out from our cognizance and veiled from our reason.

This is precisely what takes place in epidemic cholera. Of its prodromous we cannot, as has been hinted above, know any thing, until we can determine and analyse its cause; ascertain the character of the first impression it makes upon the living organization; the points upon which this impression impinges, and the order of its propagation through the mazes of the animal economy. Of its effects, however, we can judge, so soon as they become manifested through the disturbance of the differ-
ent functions. They then assume a tangible form; become cognizable by our senses, and he who is conversant with the healthy laws of the organism, cannot be at a loss to appreciate their character, and translate them into a known and intelligible language. When an individual has been brought under the influence of this cause, whatever may be its essence, the first visible phenomena developed by it are such as appertain properly and peculiarly to superexcitation and inflammation of the gastro-intestinal mucous surface. Its effects localize themselves upon that tissue, and there is increased and altered secretion, perverted and exalted sensibility of the part, and all the consequences which usually grow out of such a condition, manifested by pain and tenderness of the abdomen, griping, nausea, vomiting, diarrhœa, and all the symptoms, in short, which appertain to the first stage of cholera. These conditions may not go beyond this point, in which case the individual is merely affected with a mild form of disease, or cholerine; or they may become every minute exasperated in intensity, so that he shall be rapidly hurried through all the stages of the most violent form of cholera asphyxia, and be cut off in two or three hours. What then are the lesions revealed on dissection, when the disease terminates thus speedily in death, to which such a formidable array of symptoms can be attributed?

During the prevalence of cholera in Baltimore, we had occasion to examine the bodies of persons who had died in almost every stage of that disease, and however diversified the symptoms, or protracted the case, enlargement of the mucous follicles was present in every case. It existed in those who died of only a few hours illness; as well as in others in whom death did not take place until the symptoms of typhoid fever made their appearance, or had even continued for some time. In a stout, healthy negro, who was attacked at ten o'clock in the morning, and died at three in the afternoon, the clustered glands of Peyer, and the isolated glands of Brunner, were found much inflamed and enlarged, and inflammation also existed in the villi, and the other portions of the mucous membrane. These conditions were more strongly developed when death took place at a later period, and were observed by others than ourselves. Dr. Baxley, who was enabled to make many examinations at the penitentiary, found them in all cases; and Dr. Warner, who was officially attached to one of the cholera hospitals, has informed us, that in about twenty cases examined by him, he found follicular gastro-enteritis in every one, characterized by the tuber-
culo-pustular condition of the mucous membrane. It should be stated, that both these gentlemen, from their accurate knowledge of anatomy, and their habit of making post mortem examinations, were fully competent to appreciate any lesions that would fall under their observations. In one of the cases examined by Dr. Warner, an individual who had been previously in perfect health, was attacked with cholera, and died in five hours; yet the mucous membrane was found, on dissection, presenting the same inflammation and enlargement of the mucous follicles. Did our limits admit, we might confirm the correctness of these statements by the result of dissections made elsewhere. With a very few exceptions, all the writers on cholera, as well in this country as in Europe and Asia, concur in their acknowledgment of this condition of the follicles as an almost constant condition. Other lesions existed, but these were predominant, and constituted the most striking peculiarity. The exanthemoid eruption of the mucous membrane formed the most striking peculiarity, and was found after death, at every period of the disease, as well in those cases in which it terminated fatally in a few hours, as in others in which it was protracted several days.

Dissections of those who have died of fever have not furnished the same conclusive evidence of the existence of inflammation of the gastro-intestinal follicles from the onset of the febrile symptoms, because patients seldom die at a sufficiently early period to enable us to determine precisely the exact stage of the disease at which they are developed. The results of modern investigations, however, have contributed much to prove, that even here the same relationship exists between the lesion and the symptoms, and to render it certain that many of the latter at least, are dependent upon the former. This fact has been especially elucidated by Louis, Andral, Bretonneau, Bouillaud, and several other French pathologists. It has been confirmed by our own observations, and under the mass of evidence that is gradually accumulating, must be eventually admitted as incontestible. As far back as 1822, we had occasion to recognize the enlargement and inflammation of the intestinal follicles of an infant, who died of an attack of autumnal fever, on the second day after the attack, in consequence of the super- vention of convulsions. We have repeatedly met with it in those who had died at an early period of bilious remittent, yellow, and typhoid fevers; and wherever fever, whatever may have been its primary form, has been protracted, we do not remember to have seen a case in which some evidence of follicular gastro-enteritis, either in form of enlargement of the fol-
lies, punctuated redness, extravasation, &c. did not exist: obscure, in some cases, it is true, but always sufficiently apparent when the intestine was fairly laid open, carefully cleansed, and held between the eye and a strong light, or examined with a magnifying glass. The early development of the exanthemoid condition of the gastro intestinal follicles has been fully proved by the observations of others. It is stated by Trosseau, (1,) that it existed in the body of an individual examined by Bretonneau, who died of fever on the fifth day after the invasion of the disease. Andral (2) cites a case in which the follicles were very considerably enlarged, where death took place on the sixth day, and a second, where the patient died on the ninth. (3.) Louis (4) met with it as early as the eighth day, and Petit and Serres report the case of an individual who died of enteromesenteric fever, complicated with slight pneumonic symptoms, about the fourth or sixth day, where the elliptic patches of the ileum, or the glands of Peyer, were very apparent. The same condition was also recognized by Cruveilhier, (6,) in a case where the individual expired on the seventh day, and where he had, from the symptoms, diagnosticated follicular gastro-enteritis.

It will be seen from this, that in the various forms of fever of which we have been speaking, when follicular gastro-enteritis constitutes any part of it, it exists from the moment the disease declares itself through the symptoms. We have seen, that in cholera the evidence upon this point is incontrovertible; and in fever, though opportunities have not been afforded to make post mortem examinations at so early a period, the concurrent experience of all who have investigated the subject with attention, goes clearly to prove the constancy of these lesions, even at the earliest period after the invasion of the disease. We have reported one case as early as the second day, and numerous others have been cited, upon the authority of the most careful observers, in which follicular gastro-enteritis was observed after death from fever, occurring at all periods from the fourth up to the eighth day. Beyond that period, it may be regarded as almost constant, inasmuch as out of fifty-three examinations of indi-

(1) Archives Generale de Medicine.
(2) Clinique Medicale, tome 1. p. 3.
(3) Ibid. p. 9.
(5) Sur la Fievre Entesi-mesenterique.
viduals who had died of typhoid fever, made by Andral, follicular gastro-enteritis existed either in the exanthematous, ulcerative, or healing state in thirty-eight; in seven, gastro-enteritis not implicating the follicles, though in some it was accompanied with ulceration, was observed; and in eight only, were the evidence of inflammation of the gastro-intestinal mucus membrane inappreciable. Bouillaud* encountered follicular gastro-enteritis in all the cases of bilious fever that were examined by him, and in every example of adynamic fever, the victim of which he dissected. Louis† also met with it in every case of typhoid fever which he examined, the whole number being forty-six. To the same point we have the concurrent testimony of nearly every one who has investigated the subject with attention; especially Bretonneau, Trosseau, Cruveilheir, Boisseau, and many others.

It is, therefore, not only at the onset of the disease that this condition of the mucous membrane exists, but throughout every stage of its progress. It is a constant companion of the fever; commences with its first invasion; increases as the fever increases; and when it declines, so does the fever which is kindled by its influence upon the different functions. There is generally a perfect correspondence between the march of the follicular inflammation, and the outward phenomena of the febrile affection. If the one is mild, so are the others; if the inflammation is exasperated by any cause, the symptoms of the fever are increased; and should the inflammation subside or the ulcers to which it gives rise take on the healing process, the febrile disturbance abates, the condition of the patient is ameliorated, and he is gradually restored to health. Numerous opportunities have presented to confirm the correctness of this proposition. It has frequently happened, that in the course of convalescence, after all the symptoms of the fever have subsided, the individual has been cut off by some other cause; and in such cases, especially when the convalescence has been in progress for several days, the enlarged follicles have been found diminished in size or collapsed, and the ulcers either cicatrized, or in a healing condition. This coincidence between the subsidence of the fever and the cicatrization of the ulcers must not be considered as constant. The same law holds good here that regulates the vital acts in other local inflammations. In pneumonia, while the intensity of the inflammation persists, the disease is accompanied with fever; but when it has somewhat subsided, all the febrile symptoms

* Traite Clinique et Experimental des Fievres, &c. Paris, 1826.
† Recherches sur la gastro-enterite, tome 1.
frequently disappear, while the inflammation still continues in a subacute form. Hence it has been correctly observed by Andralt, * that when the lungs are affected with inflammation, it frequently happens that the organ remains in a hepatised condition, even though all the characteristic symptoms of the disease have subsided—the same fact has been fully verified by Cruveilhier in relation to follicular gastro-enteritis. In individuals who had been accidentally cut off on the twentieth, thirtieth, or even the fortieth day of convalescence from fever, he states that he was strangely surprised to find in the intestinal canal, instead of the cicatrices for which he was in search, ulcers as deep and extensive as at any stage during the height of the disease. † This, however, cannot be alleged as an argument against the correctness of the opinion expressed above,—that the febrile symptoms are merely a consequence of the local affection; for it is a common occurrence in all local phlegmasia attended with febrile excitement, for the latter to subside, after it has continued sometime, while the inflammation itself continues to exist. The reason of this is perfectly comprehensible: any impression to produce fever, must possess sufficient intensity to rouse up the sympathetic relations of several organs, and to throw them into a state of super-excitement. While it maintains this intensity, the fever will continue; but as soon as it falls below this point, or the organs have become so well accustomed to the source of disturbance that they are not so much affected by it, all the indications of fever will disappear, merely leaving a state of pure local inflammation. The follicular inflammation of the mucous membrane, therefore, at certain periods of its progress, excites a general febrile disturbance, which continues as long as the lesion of the mucous membrane is sufficiently intense to excite fever; but after the diseased follicles have been destroyed by ulceration, and the inflammation in the vicinity and at the bottom of the ulcers has subsided, all febrile symptoms vanish, notwithstanding profound and extensive ulcers still implicate the tunics of the alimentary canal.

We have already adverted to the advances which have been observed in the follicular ulcers towards a state of cicatization, and have stated that when the fever subsides, they frequently become completely healed. That they nevertheless often remain open, long after the subsidence of the fever, is not only

* Clinique Medicale, tome 1. p. 490.
proved by dissections, as stated above, but from the remarkable proneness there is to relapse from any imprudence in diet, or to pain and uneasiness of the alimentary canal, diarrhoea, &c. from the indulgence in any article of food which is liable to excite the diseased mucous surface. It is by no means uncommon to see individuals relapse suddenly from improprieties of this kind, even when they had been convalescent for weeks, and the case terminate fatally in a few hours. There is generally under such circumstances tenderness, uneasiness, or even pain and meteorism of the abdomen; perhaps sickness and vomiting; diarrhoea or dysentery, with bloody and offensive discharges; in short all the symptoms of violent gastro-enteritis: and on examination after death, the bottom and contour of the follicular ulcers, are frequently highly inflamed, of a dark red color, sometimes covered with extravasated blood; there is also villous and peritoneal inflammation, and not unfrequently perforations of the lower part of the ileon, the cæcum, or the commencement of the colon.

It is thus demonstrated, that follicular gastro-enteritis exists from the period of the first declaration of the fever, accompanies the whole course of the disease, and as soon as it becomes mitigated, there is a gradual subsidence, or even a total disappearance of the febrile symptoms. Whatever, therefore, may be the prodromus of the disease, or the modifications of the vital acts which intervene between the time at which the cause makes its first impression upon the susceptibilities of the organism, and the full and open declaration of the symptoms of the fever, the latter, when they do appear, are clearly referrible to superexcitement or inflammation of the gastro-intestinal mucous membrane, either implicating the follicles or villi of that tissue. The truth of this, as we shall presently see, is disclosed by the earliest symptoms; is proclaimed throughout the whole progress of the disease by the predominance of gastro-intestinal distress, and is manifested after death by the evidence furnished by dissection. It should be stated, however, that while there is a general agreement amongst modern pathologists relative to the dependence of fever upon inflammation of the gastro-intestinal mucous membrane, it is supposed by some of them, that the fever will be different according as the inflammation is seated in the villous portion of the tissue, (the membrane proper,) or the mucous follicles. Scouettetten first, we believe, pointed out this distinction in the seat of the inflammation, which is certainly well founded; and Roche has more recently
Geddings on Follicular Gastro-enteritis.

suggested, that when the disease is seated in the villous portion, the fever will assume the bilious character; but when it implicates the follicles it will take on the aspect of mucous, typhoid, or adynamic fever. We are free to confess that there may be some foundation for such an opinion, but at the same time it must be apparent, when the natural structure of the parts is taken into consideration, the villi and follicles being so intimately connected and interspersed with each other, that it will be almost impossible for one portion to be implicated without the other, and even if that were to be the case, the difference of effect could not be so great as to give rise to such a diversity in the general phenomena of the disease.

It has been estimated by Meckel, that there are about four thousand villi disseminated over each square inch of the mucous membrane of the intestines, and that altogether they amount to more than a million. Léjut, who has recently investigated the mucous follicles with much attention, represents the whole number of those belonging to the gastro-intestinal mucous membrane as amounting to forty-two thousand. Whether, therefore, the inflammation implicates the one or the other of these structures, it will scarcely be possible for the other to escape, and if we admit the correctness of the suggestion advanced by Roche, there could scarcely be a form of fever dependent upon a lesion of the gastro-intestinal mucous surface which would not present a mixed character.

But, be this as it may, the facts which have been stated establish the importance of the surface in question, and render it easily intelligible how it is, that an inflammation, even of limited extent, implicating its structure, will be capable of awakening serious and alarming constitutional disturbance. The infinity of villi, follicles, and small glands, if we regard the small bodies of Brunner and Peyer as such, which are disseminated over this surface, are all subservient to important purposes in the animal economy. The villi are directly concerned in some of the most important acts of chylification and nutrition; the follicles in the functions of depuration, lubrication, &c.; consequently, whenever either or both of them, are extensively involved in disease, these functions must be suspended or disturbed, and through the intimate and extensive connections which exist between these structures, and the whole chain of ganglionic nerves, such disturbances will be propagated to other parts, and still more formidable consequences will be developed. Add to this, that the office of the glands of Peyer and Brunner has never been
satisfactorily determined. While some have merely regarded them as clusters of mucous follicles, others have endowed them with a more important agency, and conceive that they are instrumental in the execution of higher functions than that of the mere secretion of mucus. If this be true, may we not infer, that a disease implicating their structure, will excite much more formidable consequences than a simple inflammation of the follicles and villi?


Having examined the anatomical characters of follicular gastro-enteritis, we are now prepared to enter upon an analysis of its symptoms, with the view of determining their relations with the lesions upon which they are dependent. In the discussion of this portion of our subject, all we can do will be to make a hasty examination of those symptoms which constitute the leading or most prominent features of the disease.

If we regard the first manifestations of the development of a case of fever, we shall find that they are all such as can be clearly traced to a derangement of the digestive function. This is true, as well of those that are called premonitory, as of such as make their appearance at a later period. The loss of appetite, the loathing of food, the desire of refreshing and acidulated drinks, the general languor, lassitude, and uneasiness, all indicate either a state of congestion or superexcitation of the mucous membrane. The functional acts of the stomach and intestines are impaired; and being unable to perform their usual offices in a proper manner, they proclaim their inability through their instincts, by the outward indications which have been enumerated. The ganglionic nerves, which are spread out upon the mucous surfaces, are submitted to a state of superexcitation, which is not only manifested by the thirst and desire of acids, but also by the general malaise of the locomotive apparatus, the sense of languor and fatigue, and by the tenderness or supersensitiveness of the muscles and articulations. These latter conditions are explained by the connections which exist between the ganglionic and cerebro-spinal nerves, through which an irritation affecting the filamentary extremities of the one, where they are abundantly distributed upon the mucous membrane of the stomach and intestines, is gradually transmitted to the others, which preside over the functions of sensation and motion, the instruments of the latter being the muscles of animal life, the bones, cartilages, ligaments, &c. &c. The ganglionic
nerves being merely endowed with an obscure faculty of sensibility, which may be regarded as purely organic or nutritive, do not usually proclaim their sufferings by pain; but the cerebro-spinal, possessing sensibility in a high degree, the irritation being propagated to them through their connections with the former, they become the instruments by which the sufferings are more openly declared. Hence the symptoms of distress and uneasiness manifested by the locomotive apparatus. The same manifestations of irritation of the ganglionic nerves, or the structures upon which they are distributed, are observed in the pain which is experienced at the end of the penis, when there is a stone in the bladder; along the inner part of the thighs and in the groins, where there is stricture of the urethra or calculus in the kidneys. It frequently happens that the organs which are exposed to the irritation, do not furnish any indications of pain, while the parts which are supplied with those spinal nerves immediately associated with the portion of the ganglionic to which the irritation is applied, are sore, tender to the touch, and acutely painful.

To these symptoms very generally succeed great precordial oppression, nausea, vomiting, and tenderness over the epigastrium, all of which are unquestionable evidences of a still greater exaltation of the superexcitement and consequent congestions of the gastro-intestinal mucous surfaces. They are not conditions of debility, because they are constantly exasperated by stimulants; and that they depend upon a state of superirritation, or excitement, of those surfaces, is not only manifested by the concomitant symptoms and the appearances exhibited on dissection, but by the relief afforded by those remedies which subdue irritation and inflammation. These symptoms sometimes precede, but more frequently follow, the open declaration of the fever. They very generally attend the chill, when the disease is ushered in by that prelude; and here, too, the evidence of gastro-intestinal irritation is incontestible; for the chill is merely owing to an overwhelming congestion of the abdominal and other organs of vegetative life, taking place in consequence of a determination of the whole of the circulating fluids upon them; this centripetal tendency being excited by the superexcitement of the mucous surface of the alimentary canal. At this period, there is also, in most cases, constipation of the bowels, or diarrhoea; the one depending upon a suspension of secretion from excessive excitement of the crypts and follicles, or with this, a diminution of the contractility of the muscular fibres of the
tube, occasioned by the whole excitability being concentrated upon the mucous membrane; the other upon an augmented secretion, and an increased contractility, the secretion proceeding from the direct irritation of the mucous tissue; the contractility from this irritation being propagated to the muscular tunic.—The secretions, too, are altered in quality, so that when evacuations either take place spontaneously, or are excited by artificial means, they exhibit an unnatural color, and are highly offensive to the smell. The tenderness of the abdomen may depend upon two causes: either an exalted sensibility of the intercostal and lumbar nerves which are distributed to its walls, excited by their connections with the ganglionic nerves, or a direct exaltation of the latter themselves, or that portion of them which is distributed upon the affected part of the tube. It has been very correctly remarked by Broussais, that tenderness of the abdomen, on pressure, is seldom manifested in gastro-enteritis, except when the inflammation extends to the peritoneal tunic; but it may be observed in addition to this, as has been correctly remarked by Cruveilhier, that the absence of pain under this mode of exploration, is frequently owing to the portion of the intestines which is principally affected being lodged within the cavity of the pelvis, behind the bladder, where it will consequently be out of the reach of the pressure.

To the physiologico-pathological modifications of the organism, excited by the operation of the remote cause, other consequences soon become superadded. The heart, forming as it does, a portion of the great system of nutritive or vegetative life, derives its nervous supply from the same source as the other organs appertaining to that system. The ganglionic nerves not only ramify in its substance, but follow the numerous vessels to their most minute terminations, presiding over and controlling the acts of circulation, and regulating those of nutrition, secretion, and depuration. They, moreover, supply all the glands; are distributed to the eye, the ear, the nose, the mouth and fauces, the larynx, traæhea, and bronchial ramifications; the pharynx œsophagus, and the entire tract of the subdiaphragmatic portion of the alimentary canal; and also the whole extent of the generative and urinary apparatus. As they every where accompany the arteries, they must follow them to their terminations, whether that take place in the parenchyma of the tissues or organs, upon the mucous or serous surfaces, or that of the skin. In the latter, however, there are many cerebro-spinal nerves; because, besides the offices of nutrition, secretion, ex-
halation, suppuration, &c. which the cutaneous surface has to perform, it is also an organ of both special and general sensation. To this must be added, that this extensive ganglionic system is everywhere associated by direct connection with the nerves of animal life. These two systems are united within the cranium, about the face and its cavities, along the neck, the thorax, the abdomen, and pelvis; in the parenchyma of the tissues, and in short at all points where the two orders of nerves are distributed. In this manner, all the tissues, organs, and functions, are intimately associated with each other, and any impression or disease, taking place in one, will easily extend its influence to one or more of the others.

Availing ourselves of these facts, we can, without much difficulty, explain most of the phenomena manifested by febrile action. We have seen that the first of these phenomena are such as appertain properly to a disturbance of the alimentary canal. But it is a law of the animal economy, that any intense implication of an organ in a diseased condition, cannot be confined, exclusively, for any great length of time, to the part upon which it first localizes itself; without giving rise to more or less impairment of others, with which it is connected by its sympathies. Hence the superexcitement or inflammation of the gastrointestinal mucous membrane, which constitutes a primitive condition in many forms of fever, gradually diffuses its influence to those parts with which the diseased organ has the closest relations. This influence is propagated from the duodenum to the liver, either by the direct continuity of surface furnished by the lining membrane of the biliary ducts, through the hepatic plexus of the ganglionic nerves, or through the branches of the portal veins. This gland may thus become the seat of congestions or of a state of hyperaemia, and it may have its secretions increased, diminished, suspended, or altered in quality; all of which conditions are frequently observed in the course of the disease. This implication of the hepatic function has been very generally considered by English and American physicians as primary, but an investigation of the physiologicopathological modifications, which take place between the regular inception of the disease, and the period at which these hepatic symptoms are manifested, will clearly prove, at least in a large majority of cases, that they are purely secondary, and are developed by the extension of the irritation or superexcitement from the duodenum in the manner already expressed. This too, is confirmed by dissections. It has been remarked by Broussais
and Andral, whose opportunities for making such observations have not been surpassed by those of any other individuals, that in a majority of cases of affections of the liver, the disease is seated at first in the stomach or duodenum, and the hepatic disease is consecutive; and the same thing is proved by a fact stated by the last named individual; that in many cases of jaundice, the only appreciable lesion discovered after death, has been more or less inflammation of the lining membrane of the duodenum.

A similar extension of irritation from the gastro-intestinal tube to the spleen, gives rise to considerable disturbance in that organ. An increased quantity of blood is thrown upon it, in consequence of the superexcitement of its structures; it becomes congested; its molecular arrangement is frequently modified; its volume is increased; and as it probably performs an office preparatory or subservient to the liver, it is rational to infer, that some changes take place in the properties of its circulating fluids different from those which are elaborated during health. The kidneys, too, very frequently have their functions disturbed from the same cause. The ganglionic nerves control their secretory function, and in consequence of their being associated by means of these nerves with the alimentary canal, the disease under which the latter labors extends its influence to them, giving rise to increased, diminished, or altered urinary secretion.

While this disturbance is taking place in the parts which have been enumerated, and frequently even before some of them are developed, the circulatory system becomes implicated. Through the medium of the ganglionic nerves the irritation is propagated to the heart and arteries; they are aroused to increased action; the frequency and force of their contractions are increased; the motion of the blood is accelerated; the capillary vessels are distended; the skin becomes hot and dry, and all those symptoms which are regarded as appertaining properly to fever are developed. The respiratory function also, which is directly associated with that of circulation, is submitted to corresponding vital modifications. The lungs, inordinately excited, in part perhaps by the increased velocity of the circulation of the blood through their vessels, and in part, by the propagation of the irritation to them through the ganglionic nerves, from the original focus of the disease in the digestive organs, are thrown into a state of preternatural action; their innervation is altered; the respiration becomes frequent, hurried, and laborious, and the ordinary
chemical changes take place with greater rapidity, or undergo important modifications. Simultaneously with the development of these conditions, there is a change of the cutaneous secretion and exhalation, which are generally suspended, so as to render the skin dry and parched; but sometimes increased and altered in quality. The increase of animal temperature seems also to be connected, as well with the modifications of the nutritive and functional acts of the capillary vessels and the parenchyma of the tissues, as with the exalted and hurried acts of the respiratory function.

With the implication of the several functions and organs which have been designated, there are also declared evidences of more or less disturbance of the cerebro-spinal axis. Sometimes even before the circulation becomes very appreciably deranged, the individual complains of pain and heaviness of the head, un easiness of the loins, tenderness and soreness of the flesh, and more or less perversion of the senses. Many of these symptoms declare themselves so early, that they have been often supposed by pathologists to be antecedent to those which appertain to the alimentary canal. It should be remembered, however, that in consequence of the obscure faculty of sensibility possessed by the ganglionic nerves, they are frequently deeply involved in disease, without there being any palpable evidences of disturbance; the disease remaining for some time, as it were, in a latent state. An affection of the nervous system of animal life; on the contrary, in consequence of its exquisite powers of sensibility, is at once declared by symptoms which are unequivocal. However early, therefore, these latter conditions may be revealed, it will generally be found that they have had for their antecedents an implication of the gastro-intestinal mucous membrane, which, although not marked by any very palpable exterior manifestations, nevertheless frequently approaches disorganization, before the marks of disturbance in the cerebro-spinal axis become at all manifest. This is not only shewn by the order of succession exhibited in the evolution of the various stadia of the disease, but likewise by the evidence furnished by dissection.

It is thus, by a gradual irradiation of the irritation, or superexcitement from the tissue or organ upon which it is first localized, to others with which it is associated by an intimate chain of sympathies, that the functions become successively embarrassed, and the disturbance, from being at first purely local, becomes more widely diffused. In this manner several systems
Geddings on Follicular Gastro-enteritis.

or organs become gradually implicated, and if the degree of suffering to which they are submitted be considerable, even those which become secondarily involved, may, as well as the primitive seat of the disease, undergo important structural modifications. Indeed, it may happen, notwithstanding the disease was primarily a pure gastro-enteritis, that the lesion of some organ consecutively affected, may acquire greater intensity than that which constituted the original focus of the malady, and thus may extinguish it, in virtue of the law long since pointed out by Hippocrates: *duobus doloribus simul abortis, non in eodem loco, vehementior obscural alterum.* Aph. Sect. 2. 46. Thus, we frequently find, during the early stage of a case of fever, a strong predominance of gastric symptoms, but towards the conclusion, that all these are supplanted as it were by the intensity of the encephalic implication.

If we advert more particularly to the proportionate participation of the disturbance of these several functions, and the aggregate phenomena of the disease, the order in which its manifestations are declared, as well as the relations they bear to each other, and to the organic lesions upon which they are dependent, the whole result will conduct us to the same conclusion—that the gastro-intestinal mucous tissue is the part upon which the malady first localizes itself, and the focus from whence the generating cause of all the consecutive mischief proceeds. The morbid cause, whatever its character,—whether it be stimulating or debilitating; whatever the part upon which it first impinges; concentrates its influence upon this structure, because of its exquisite organization, its extensive sympathies, and its numerous relations, as well nutritive, as secretory and functional; and the whole aggregate phenomena of what may be properly called the prodromus of the disease, having thus centred themselves, their influence is from thence diffused throughout the other systems, attacking the one or the other according to its degree of predisposition, or the intimacy of its sympathies with the point first affected.

These characters may be considered as appertaining to fevers in general. We shall next direct our attention to those which are more particularly characteristic of the forms of the disease which are associated with follicular gastro-enteritis. We shall first examine those which belong to the abdominal organs.

a. Abdominal pains.—From what has already been stated, it will be conceived, that even serious lesions may take place in the organs contained within the cavity of the abdomen, without
there being any manifestation of pain. Broussais first pointed out this important fact, which has since been fully confirmed by the observations of Andral, Louis, Trousseau, Cruveilhier, and indeed a majority of modern pathologists. Nevertheless pain of the abdomen does not constitute an unfrequent concomitant of fevers of the typhoid character; appearing in some instances at the onset of the disease, and in others only developed at different periods of its progress. Out of fifty fatal cases of typhoid fever which were examined by Louis, he states that pains of the abdomen "were experienced in different degrees in thirty-nine, or rather in all cases in which he could obtain information either of the patients themselves, or of those who brought them to the hospital." These pains made their appearance on the first day of the disease in sixteen: in three they were declared on the third day; but in the remaining number the epoch of their development could not be determined. The pains, he remarks, were sometimes diffused over the whole abdomen; but more frequently they occupied the hypogastric region or the iliac fossae; they rarely followed the tract of the colon. They were sometimes colicky; occasionally obtuse, and in some they were accompanied by a distressing ardor-diffused generally over the abdomen. They continued, when not masked by the development of delirium, from four to fifteen days, and sometimes recurred at intervals after they had disappeared. Out of fifty-seven of the worst cases which were cured, it is stated by the same author, that these pains were present in all but five, and in thirty-two out of the number, judging from the pain and diarrhoea, the affection of the mucous membrane existed from the first inception of the malady. In thirty-one cases of a milder character which were cured, the pains were wanting in two; appeared on the first day in four; recurred at intervals in five, and in the remainder continued three or four days.

If, in addition to these facts, we take into consideration the obtuse sensibility of the gastro-intestinal mucous membrane, in virtue of which it is capable of becoming intensely inflamed, without manifesting its sufferings by pain, we have indubitable evidence that the lesion of that structure constituted the primary seat of the disease; a fact which is fully confirmed by the circumstance, that in all the cases the symptoms bore an accurate relation with the intensity of the affection of the mucous membrane.

b. *Gastric Symptoms.*—Gastric symptoms, consisting of nauseæ, vomiting, epigastric tenderness, or pain, are not unfrequent attendants in most forms of fever. The stomach sympathizes extensively with most of the other organs, and were we to judge from the frequency of its disturbance observed in the course of many diseases, we should be apt to infer that it constitutes the principal seat of a large number of them. But notwithstanding the symptoms of this disturbance are of so common occurrence, it may be remarked as a singular fact, that in dissections of those who have died of typhoid fever, the lesions of this organ have not always been in a ratio with the symptoms observed during life. This has been satisfactorily shown by the researches of Louis and Andral, and the result of our own observations have led us to the same conclusion. We have often seen the stomach harrassed with nausea, vomiting, and pain, throughout the whole course of the disease; but after death have not been able, in many cases, to detect any lesion of its tunics of sufficient extent to furnish a rational explanation of the symptoms. It should, nevertheless, be remarked, that in such cases the mucous membrane of the small, and frequently of the large intestines, has been generally found extensively implicated. Thus, it has been stated by Louis, that in thirty fatal cases in which attention was paid to the gastric-symptoms, twenty experienced either nausea, vomiting, or epigastric pain; but out of this number, only eleven presented any appreciable lesion of the mucous membrane of the stomach. He, however, subjoins, that in every case, (five in number,) in which there were simultaneously epigastric pain and vomiting of bile, the mucous membrane of the organ was found diseased. But while it is conceded, that nausea, vomiting, and epigastric pain, do not furnish incontestible evidence of the existence of inflammation of the mucous membrane of the stomach, it must not be inferred that the absence of those symptoms is likewise conclusive in relation to the non-existence of that condition. Repeated observation has demonstrated, that it may be extensively inflamed, ulcerated, softened, or even gangrenous, without any of these symptoms being observed; and individuals have not unfrequently been destroyed in this manner, where the disease was so completely latent as not to awaken a suspicion of its character.

These considerations establish the fact, that although the mucous membrane of the stomach is frequently implicated at the first onset of the fever, it is not so often affected as that of the
intestines; and that in many cases where it does become involved, it is probably consecutive to the intestinal affection.

c. Diarrhoea.—We have already stated that either constipation or diarrhoea constitutes a very common symptom at the onset of the disease. We have also explained that this is in exact accordance with the idea that the superexcitement or irritation, which constitutes its proper element, is seated in the gastrointestinal mucous membrane. Our own observations incline us to believe, that the one or the other of these conditions will be present, according to the particular part of the alimentary canal which may be affected: constipation attending, when the disease is seated in the stomach and upper part of the small intestines, and diarrhoea, where it involves the ileum, or the large intestines. This view of the subject is borne out by facts of frequent occurrence. Thus, in bilious and yellow fever, the seat of which has been ascertained by repeated dissections to be chiefly in the stomach and duodenum, with, in many instances, a consecutive implication of the liver and spleen, constipation is a more constant concomitant of the first stage of the malady than the opposite condition, whereas in the several grades of fever denominated typhoid; the ileum and the upper part of the cæcum are mostly implicated, and diarrhoea consequently often exists from the first inception of the disease. In making this observation, we are aware that there are some facts, which at first sight might seem to militate against the conclusion; but we think they are neither sufficiently numerous or cogent to invalidate it. Be this as it may, the fact is incontestible, that diarrhoea is a much more frequent condition at the onset of typhoid than at that of bilious fevers, while the opposite condition is more frequent in the latter. Post mortem examinations reveal, in like manner, a corresponding difference in the seat of the lesions in the two diseases.

The numerous researches of Louis and Andral, to which we have so often had occasion to refer, represent the occurrence of diarrhoea, in a large proportion of the cases which fell under their observation. Out of forty fatal cases examined by the former, in which his attention was directed to that subject, twenty-two were affected with frequent liquid stools on the first day of the disease. Of the fifteen others, it commenced in nine, from the third to the ninth day, and in six, between the eleventh and the fourteenth. In these cases, up to the period of the development of the diarrhoea, the bowels had been sluggish, and operations were seldom obtained, except when solicited by injections. Ac-
cording to the observations of the same author, forty-four out of fifty-seven of those who had the disease with considerable intensity, but who were cured, had diarrhoea from the commence-
ment. Out of the remaining number, it occurred in five on the second day, three on the third, four on the fourth, &c. In two cases it appeared on the eighteenth and thirtieth days. The ob-
servations of Bouillaud and Andral correspond so exactly with these, that it will be unnecessary to cite them numerically. It may be useful, however, with a view of exhibiting more accurately the exact relations of the diarrhoea with the other pheno-
mena of the disease, to group the cases, as has been done by Andral, according to the period at which the affection of the bowels was declared.

In the first class of cases, the diarrhoea declared itself sometime before the development of the febrile symptoms, and in the individuals thus affected, there was loss of appetite, and a gradual impairment of health, which increased until the disturbance awakened by the local affection terminated in the development of the febrile symptoms. This was the case in several of the examples reported by Louis and Andral, and we are disposed to attach much importance to the circumstance, since it goes far to prove the dependence of the febrile disturbance upon the local affection of the mucous membrane, and to controvert the opinion of those, who maintain that the lesion of that tissue is merely consecutive of the fever, and developed by its influence. It cannot be objected to this conclusion, that if the fever were a consequence of the inflammation, it should make its appearance at the same period as the latter, inasmuch as the same thing is observed in other diseases which are unquestionably of an inflamatory character. It is not an uncommon occurrence to find the inflammation of the lungs, the bronchia, the pleura, and other organs, remaining in a latent state, and only revealing its true character after continuing for some time in that condition, and after it has obtained sufficient intensity to rouse up the sympathies of those organs with which the affected part is associated. Therefore, in the cases under consideration, the disease of the gastro-intestinal mucous membrane commences in an obscure and concealed form, but gradually increases in intensity, until it acquires sufficient force to extend its influence to the heart and arteries and the other organs, and excite the febrile condition.

In the second class of cases, the fever and the diarrhoea make their appearance simultaneously; and this may happen either when there has been a previous impairment of the health, or
when the individual has suffered little or no disturbance of function up to the period of the open development of the disease.—Sometimes the diarrhoea does not take place until after a chill has announced that the abdominal organs are suffering under the influence of inordinate irritation. In these cases as well as the preceding, the irritation which is at first obscure, gradually invites an increased determination of blood to the part, which continues to accumulate until the excitement in the tissue attains sufficient intensity to accelerate the action of the heart and arteries, and thus give rise to reaction, or the ordinary phenomena of fever. We have already stated, that in a large proportion of the cases observed by Louis, this was the character of the disease.

The diarrhoea, as has already been stated, is sometimes consecutive to the fever, and may make its appearance at any period of its progress. Under these circumstances, it sometimes takes place spontaneously, especially when the bowels have been previously constipated: and occasionally, as has been remarked by Andart, it is excited by medicines, particularly calomel, administered for the relief of the constipation.* In nearly all cases it is attended with an exasperation of all the symptoms; and it has been stated by the author just quoted, that it frequently marks the transformation of an inflammatory or bilious fever into one of a typhoid or adynamic character. To this remark we are disposed to attach much importance; for while its truth has been confirmed by our own observations, it tends to corroborate the correctness of the suggestion thrown out above,—that bilious, or bilio-gastric fevers, are located, for the most part, in the stomach and duodenum, and the adjacent glandular apparatus, while the typhoid is seated especially in the ileum and the first part of the large intestines. Hence it happens, that a fever which was at first purely of a bilious, or bilio-gastric character, may, in its progress, have the characters of the typhoid superadded, in consequence of the extension of the inflammation along the direct continuity of surface, from the stomach and upper parts of the small intestines, to the ileum, cæcum, and colon.

It occasionally happens, that the diarrhoea continues after the complete subsidence of the febrile symptoms, and occasionally throughout the whole period of convalescence; retarding the recovery of the patient, and evincing the persistence of an in-

* Clinique Medicale, tome 1. p. 521.
flammation of the gastro-intestinal mucous membrane, which is ready, under the commission of the slightest imprudence, to become exasperated to the degree of giving rise to a renewal of the fever. In some cases, this inflammation continues for months or even years, in a subacute or chronic form, at the expense of a considerable impairment of the general health, and exposing the individual, if not to fever, to frequent attacks of diarrhea or dysentery.

d. Meteorism, or a tympanitic condition of the abdomen, is another symptom which clearly demonstrates the profound implication of the alimentary canal in the ravages of the disease. This, it is true, is not so frequently observed as some of the other conditions which have been enumerated, yet in many cases, it takes place, especially in the advanced stage of the disease. According to the tables of Louis, meteorism of the abdomen existed in thirty-three, out of forty-six fatal cases examined by him. It appeared at different periods; but in the largest proportion of those who died, between the twentieth and the thirtieth day. But at whatever period it occurred, its principal seat seemed to be the colon, the irritation having extended probably from the ileum to that intestine, and there giving rise to a copious elaboration or secretion of gas from the internal surface of the organ. It is possible, however, for this secretion to take place independently of the existence of inflammation, merely in consequence of a state of superexcitement of the vessels, and especially of the nerves, of sufficient intensity to give rise to a perversion of the secretory function.

e. State of the Tongue.—There is no point to which the attention of the pathologist is more frequently directed than the tongue, and none upon which more reliance has been placed, as furnishing an indication of the condition of the gastro-intestinal mucous membrane. It must be confessed, that in many cases this reliance is well founded, and that a close attention to the condition of this organ will often afford valuable indications in the treatment of disease. In the inceptive stage, it is generally covered with a lightish colored fur, which not infrequently exhibits a tinge of yellow. It is also more or less contracted, and generally red upon the borders; sometimes inordinately pointed at the extremity, and if the fur be detached, the papillae are generally found red and salient, though sometimes pale. These conditions indicate the existence of considerable irritation of the mucous membrane, located at first in the gastro-intestinal portion, but extending by sympathy, along the direct
continuity of surface, to the mouth, and giving rise to a perversion of the secretory acts of the part. The consequence of this state of sympathetic superexcitement of the buccal and lingual mucous membrane seems to consist of a deposite of plastic lymph upon its surface, instead of the natural mucous secretion, and the material thus thrown out, forms a kind of tenacious pellicle, which adheres intimately with the papillæ.

As the disease advances, the character of this deposite undergoes considerable change. From being light colored, grey, or yellow, it becomes brown, at first along the middle and about the root of the organ, but afterwards upon nearly the whole extent of the upper surface, except the edges, which remain of a deep red color. The tongue also becomes more contracted at the point, and its surface dry and scabrous; being in some cases, as represented by Stoll and Hildenbrand, as dry as a piece of wood. The brown fur is gradually changed into a dry, black, fuliginous incrustation; all mucous secretion is suspended, and the parts of the mouth which are not covered with this pellicle are dry and shrivelled, and the epidermis frequently cracks and peels off. The gums and teeth also become covered with a kind of sordes of the same dark appearance, and the breath acquires a highly offensive odor. To what modification of the vital acts should we attribute these changes? The black incrustation has been ascribed to a tendency of the fluids to putrefaction, and has been regarded as an index of an extreme sinking of the powers of life. The healthy properties of the blood, and consequently of the secretions which are elaborated from it, manifestly depend upon the healthy condition of the solids, at least upon the regular performance of the acts of nutrition, of which it is the proper material. Whenever, therefore, these become changed, various modifications are induced, both in the circulating fluids, and in the secretions: their plasticity is frequently increased, as is observed in ordinary healthful inflammation; but is likewise often diminished when the disease has continued so long as to give rise to a breaking down of the regular play of the nutritive acts of the tissues. Both these conditions are observed in the course of a case of ordinary typhoid fever; the first during the first stage, in which we have seen that a plastic lymph supplants the natural mucous secretion of the tongue; and the second in the advanced stage, when in consequence of the perversion of the nutritive acts, the properties of the blood become deteriorated, and it takes on what has been called the gangrenous tendency, which is nothing more than a diminution of
its natural plasticity. This, however, must not be regarded as a state of pure asthenia, as maintained by many; but as an impairment of the powers of the tissues and organs induced by excessive action.*

But notwithstanding the condition of the tongue, of which we have been speaking, may very often be regarded as a faithful index of the state of the alimentary canal, this relationship is not constant. We have repeatedly had occasion to examine the bodies of individuals in which the black fuliginous condition of the organ existed throughout the whole of the last stages of the disease, without finding any lesion of the gastro-intestinal mucous membrane of sufficient intensity to account for its development. Facts of the same kind have been reported by Piorry, Louis, Bouillaud, Fallot, Andral, and others. It would seem, therefore, to depend more, in the main, upon a general impairment of the nutritive and secretory acts of the system, induced by the disease, than upon any characters of the local affection.

f. State of the circulation.—Having already explained the manner in which the circulation becomes involved, it will not be necessary to dwell particularly upon its modifications. It embraces two points of consideration: first, the state of the heart and vessels; and secondly, that of the blood.

The heart and vessels, we have already stated, are first roused to increased activity by the sympathetic propagation of the influence of the primary local affection along the ganglionic nerves to them, from the original seat of the disease in the gastro-intestinal mucous membrane. The first disturbance, therefore, is purely functional; but this cannot continue long, inasmuch as every form of superexcitement of a tissue, which is not of mere transient duration, must give rise to corresponding modifications of its nutritive acts, and consequently, to more or less change in the character and arrangement of its molecules. As might be inferred, therefore, the heart and vessels soon have their structures involved, and a new complication is thus super-added, which, while it exasperates the symptoms of the disease, increases its fatal tendency. The lining membrane of the vascular system, which is very susceptible of diseased action, was long since found by J. P. Frank,† in an inflamed condition in fevers of an inflammatory character; and the subsequent experi-

ments of Gaspard and Bouillaud; and the observations of Louis, Andral, Ribes, Duges, Hodgson, Breschet, Dance, Legallois and others, have shewn that it constitutes a frequent concomitant of those of a typhoid or adynamic kind. Some, however, have questioned the inflammatory character of the redness of the lining membrane of the heart and vessels observed under those circumstances; and it has been stated by Andral, that it is more diffused, and is not distributed in patches like the redness of inflammation. Gaspard and Bouillaud, nevertheless, who induced all the symptoms of adynamic fever by the injection of putrid substances into the vessels, found the same condition of the tunic, which in those cases was unquestionably of the nature of inflammation. We are satisfied, in our own minds, that this is its true character, and the symptoms also go far to corroborate the correctness of this view. The pulse is generally at first full and bounding, showing a mere state of superexcitement of the nerves which control the actions of the heart and arteries: but as soon as inflammation of the lining membrane is-developed, and its susceptibilities to the stimulating influence of the blood are thus rendered still more exquisite, it becomes frequent, contracted, sharp, and fretful; and this continues throughout the whole course of the disease. Indeed, it is not an uncommon occurrence for the pulse to continue frequent and fretful during the entire period of convalescence, partly in consequence, perhaps, of the persistence of the original local affection in a subacute form, but in a great degree, as we are inclined to think, of the inflamed and irritable condition of the lining membrane of the heart and blood vessels.—The frequency of the pulse, however, in the course of the disease, is not a constant character. We have repeatedly seen it considerably below the regular number of beats in the worst forms of remittent and yellow fever; and the same remark has been made by Rush, Physick, and others. Also, in the typhoid or adynamic fevers, it is common to find a remarkable slowness of the pulse, as was long since noticed by Sarçon, and more recently by many individuals who have had occasion to witness the disease. It is not an evidence of debility, but of overwhelming congestions, and is frequently removed by blood letting.

The conditions of the blood manifested in the course of malignant fevers, have for a long time attracted the attention of pathologists, and during the predominance of humoralism, the putrefaction of that fluid was conceived to impress upon the disease the formidable characters which it presents. Since the
time of Hoffman and Cullen, too little importance has been attached to the changes which take place in the circulating fluids, and it is only recently that the alterations which they undergo have received much attention. Dependent, as it is, upon the solids for its healthy and plastic properties, and constituting at the same time, the entire source of nutrition, whatever impairs their energies, or perverts their actions, must modify its properties, and render it less fit for the purposes of nutrition. Being, moreover, to a certain extent vitalized, it is probably, like the solids themselves, acted upon by the causes of disease, and thus submitted to important changes. It has been asserted, that in malignant or putrid fever, the blood is dissolved and will not coagulate; and it is certainly true, that we sometimes find, in those who have died of that disease, that the coagulum is less dense than usual, and occasionally that it merely consists of loose fragments of a dark color, floating in a bloody serum, or is entirely absent, the whole of the blood forming a kind of fluid sanies. The same thing has nevertheless been observed in other diseases of a dissimilar character; and as it has been shown by Andral, that there is no relation between this state of the blood and the symptoms of the disease, it is perhaps of less consequence than has been by many supposed. The chemical properties of this fluid, however, undergo changes, which from their extent must exercise more or less influence in modifying the vital acts of the solids. In what these alterations consist, experiments have not been sufficiently multiplied to enable us to decide with any precision. It has nevertheless been ascertained by the researches of Clanny, that there is a gradual increase of the watery or serous part of the blood, and a diminution of the coloring matter, albumen, fibrine, and neutral salts. In the last stage of typhus, he found that the albumen of the blood only amounted to .075, instead of .121, as in a state of health, while the fibrine was reduced from .028 to .022. The salts, also, were reduced nearly one-third. But from the period at which the disease reached its acme, and took a turn towards convalescence, there was a gradual increase of these materials, and a diminution of the serum.*

These facts shew a manifest diminution of the plasticity of the blood, and a deterioration of its fitness to sustain the nutritive acts of the living solids, or impress upon them that influence which is requisite in the regular exercise of their functions.

In consequence of this, both the structure and the vitalism of the tissues become modified; their powers of self-preservation are enfeebled, and being scarcely capable to sustain themselves under the various influences to which they are exposed, they frequently take on what has been sometimes called gangrenous inflammation, and by some, a tendency to putrefaction.

We shall pass over the respiratory function, because although frequently profoundly implicated in the disease, this does not constitute a feature so constant or important as some others.

**g. Disturbances manifested in the cerebro-spinal centre.**—Next to the implication of the gastro-intestinal apparatus in the perverted acts of fever, that of the brain and spinal marrow, and their nerves, forms the most important character of the disease. The manner in which the nervous centres become involved, has already been adverted to. The sympathetic associations between the digestive organs and the nervous system of animal life, are indeed so intimate, that it is not unusual for considerable disturbance of the cerebro-spinal axis to be manifested from the period of the first declaration of the fever. In most cases, there is more or less cephalalgia or somnolence on the first day of the malady; and these symptoms sometimes continue throughout its entire progress. Should the action of the heart and arteries be considerable, delirium soon supervenes, and is always worst at night, when the exacerbation of the fever is at its highest pitch. To the same class of symptoms must be referred the pain in the back and extremities, which indicates an inordinate irritation of the spinal marrow; as the cephalalgia, somnolence, and delirium, proceed from a state of superexcitement of the brain or its membranes. This state of superexcitement, however, is at first purely sympathetic, and results from the extension of the influence of the disease from its primitive seat, or from other organs which have become consecutively affected, to the spinal marrow and brain, thus exalting the activity of these organs, and inviting to them an increased determination of blood.

These states of derangement frequently continue for several days, when the disease progresses with increasing intensity, and seldom present any material alteration while the fever preserves the character of simple, open excitement. Sooner or later, however, unless the disease should abate, the individual becomes affected with more or less dizziness of the head, a ringing in the ears, an uncomfortable sense of fullness and constriction, vertigo, and a kind of stupid or staring expression of the
countenance. There is also, in many cases, an uncomfortable sense of numbness in the extremities. If he has not been delirious before, his mind is now uncollected, and he speaks incoherently; and if previously delirious, he gradually falls into a kind of stupor, which finally becomes so profound, that he is regardless of surrounding objects, and sometimes cannot be roused. When the stupor is not so considerable, he wanders and picks the bed clothes, and his senses being perverted, he is constantly beset by fanciful objects and images. There is also a constant tremor or twitching of the muscles, sometimes amounting to violent convulsions, or there is a complete prostration of both nervous and muscular energy, and he lays helpless and immovable, and in a profound state of insensibility. These symptoms generally make their appearance about the end of the first or second week, or simultaneously with the development of the dryness and the fuliginous inerustation of the tongue. Together, they constitute what has been by Hildenbrand dénominated the nervous stage of the disease, in contradistinction to the first, or inflammatory stage. The same implication of the nervous centres gives rise to more or less perverseness of the senses. The faculties of vision, audition, smell, taste, and touch, become materially deranged, being sometimes rendered inordinately acute, but more frequently, in the advanced stage especially, so obtuse as to render them insensible even to strong impressions. The skin also becomes dark colored or mottled, and is covered with dark petechiae or vibices; dark blood oozes from denuded surfaces, or they become gangrenous, and hemorrhages take place from the nose, gums, and sometimes from the anus. Every thing, in short, seems to indicate a complete prostration of all the powers of life; and the intense putrefactive odor exhaled by the whole body apparently justifies the conclusion, adopted by some pathologists, that both solids and fluids are in a condition evincing a strong approximation to a state of putrefaction or dissolution.

But however strong the evidences of debility may be under these circumstances, they never proceed from a direct enfeebling of the powers of life. They are merely the result of a profound implication of the organs by the disease, either occasioning a tendency to disorganization, or embarrassing their functional and nutritive acts, to the extent of disabling them for the performance of their healthy offices. Nor is this tendency to disorganization, or this impairment of the vital acts from excessive action, equally diffused among the organs or systems, but generally limited to a part of them; and in consequence of
this, we find, even in the commencement of the disease, before any extensive change of structure or disorganization has taken place, that some of the organs, the locomotive apparatus for example, exhibit evidences of profound debility, merely in consequence of the concentration of the whole, or the greater part, of the irritation or excitement upon the suffering parts, thus leaving the others, as it were, in a negative state, as regards their vital manifestations. It is a law of the animal economy, that no impression or influence can be equally and simultaneously diffused throughout the whole of the tissues and organs; but must first be made upon one which constitutes its recipient, from which it progressively irradiates to the others, through their sympathetic relations. Whenever, therefore, one part becomes inordinately excited, it abstracts or concentrates, as it were, upon itself; the vitalism of some other part, which it leaves in a degree of debility in direct proportion with the quantum of such abstraction. This it is, together with the impairment of the nutritive or functional acts which is occasioned by the intense implication or disorganization of the affected part, that gives rise to the fallacious symptoms which constitute such a predominant characteristic of most protracted fevers.*

That this is true, is manifest from the evidence furnished by dissection. In addition to the lesions of the several organs already adverted to, it is generally found in such cases, that the nervous centres, and their coverings, exhibit unequivocal evidences of inflammation, manifested by vascular injection, effusion from the arachnoid, lymph deposite on its surface, adhesions, ramollissement of the nervous substance, and other indications of that process which are unequivocal. It has been found, moreover, since encephalic pathology has been more carefully investigated by Rostan, Lallemant, Parent and Martini, Abercrombie, and others, that there is a perfect correspondence between these lesions and the outward symptoms. Thus, according to the observations of Parent and Martini,† the leading symptoms of arachnitis are, independent of the febrile condition, dilatation or contraction of the pupil, rolling of the globe of the eye, strabismus, trismus, distortion of the mouth, coma, cephalalgia, delirium, hemiplegia, convulsions, twitchings or rigid contractions of the members, &c. Some of these symptoms, however, have been represented by Rostan, Foville, and Pinel-

* Geddings on Asthenia, op. cit.
9* v.1
Grand-Champ, as appertaining to ramollissement of the substance of the brain, and they doubtless arise from an extension of the inflammation to it from the membranes.

The symptoms of ramollissement are, according to Rostan, fixed and obstinate cephalalgia, stupor, a sense of numbness, formication, heaviness, rigidity or contractions of the muscles, pain and convulsive movements of the members on the side opposite to the seat of the pain, with an enfeebling of the intellectual energies, vertigo, a tendency to sleep, delirium; sometimes a sense of pricking in the extremities, and evidences of incipient paralysis. This latter symptom gradually increases, and may occupy one or both sides of the body, according as one or both hemispheres of the brain are affected. It has been supposed, that when the disease is limited to the gray substance of the brain, there is merely an impairment of the intellectual functions, without any disturbance of the motive powers; that both are disturbed when the disease implicates both structures; and finally, that the faculty of motion alone is deranged, when the softening involves the medullary portion of the brain.

It will thus be seen, that in both arachnitis and ramollissement or softening of the brain, the same symptoms are proclaimed as in ordinary typhoid fever with an implication of the encephalic apparatus. The same lesions too are found after death from the latter disease; and in the one, as in the other, there is not only a disturbance, perversion, or even a partial extinction in some cases, of the functions of relation, but likewise a serious derangement, perversion or partial suspension of the secretory and nutritive operations in nearly all the organs of the animal economy. This is not only manifested in the state of the various secretions already adverted to; but also in the emaciation, in the alteration in the properties of both the solids and the fluids, and in the development of the petechiae and vibices on the skin, as well as in the tendency to gangrene and hemorrhagic discharges, which are occasioned by a diminution of the plasticity of the organic molecules, and the impairment of their vitalism, arising from the profound implication of the nerves of both vegetative and animal life. To the same causes is owing the profound prostration of the muscular energy, which it has been shewn above is a constant concomitant of ramollissement of the brain. But in explanation of these phenomena, we must also add the implication of the proper substance of the nerves and their neurilemma, which, according to the observations of Tomassini*

*Dell' Inflammazione e delle Febbre continua p. 124. Pisa, 1820.
and Reinhold,* takes place in the course of these fevers. They are liable to the same changes of structure, when inflamed, as the brain and spinal marrow, and their coverings, and may give rise to similar consequences, as regards the disturbance of the functions of sensation and motion, and through their connections with the ganglionic nerves, even those of secretion, nutrition, and depuration. These then, taken collectively, are the sources of the twitchings, the perverted sensations, the muscular prostration, the intellectual disturbance, and many other phenomena which have been erroneously attributed to pure debility. The latter is a mere consequence of the ravages inflicted upon organs essential to life. It results from their inability, under their state of advancing disorganization, to perform their natural offices, and can only be prevented by obviating the ravages of the disease upon the living structures.

Having now taken a hasty examination of the principal characters of follicular gastro-enteritis, and proved by a detail of facts, that it coexists with many forms of fever, during their entire progress, from the period of their inception to their termination, we shall only advert to one more point.

Notwithstanding there is a general accordance amongst modern pathologists relative to the connection of the lesion in question with many forms of fever, they are not all of the same sentiment in reference to the relations they bear to each other. It is contended by some, that the febrile symptoms are merely a consequence of the local affection; while the others maintain, that the follicular inflammation is developed by the febrile condition, in the same manner that the variolous, rubeolous, or scarlatina eruptions, are induced by the preceding fever. Brettonneau, indeed, as we have already explained, considers follicular gastro-enteritis, which he has denominated dothinenteria, as a disease dependent upon a specific contagion, and giving rise to an eruption of the gastro-intestinal mucous membrane, which possesses the same relations with the general disease, that the variolous eruption bears to the fever by which it is evolved. We have seen, however, that it does not necessarily depend upon any such cause; that it occurs under a great diversity of circumstances, and in diseases which proceed from common causes; and that it is probably developed in many cases long before the declaration of the febrile symptoms. Trousseau, Velpeau, Cruveilhier, Leuret, &c. have also adopted a similar

*Kritische Blicke auf das wasen des nerven Fiebers. Dresd. 1824.
conclusion, at least so far as regards the intestinal eruption being consecutive to the fever; but from what we have ourselves witnessed, and from a careful examination of the whole grounds, this opinion appears to us to be altogether incompatible with the phenomena of the disease.

We will merely observe in conclusion, that although we have contended for the local origin of all those diseases usually denominated essential fevers, and have adduced facts to render it probable that the localization of most of them is in the gastro-intestinal mucous membrane, we would not wish it to be inferred, that these diseases may not be developed by a local superexcitation or inflammation of other organs. Every part of the animal organism is endowed with susceptibilities, and connected by an intimate chain of sympathies with the others. All are liable to disease, and when inflamed, may excite a general febrile disturbance. We conceive, therefore, that while the gastro-intestinal mucous membrane constitutes the most frequent origin of fever, it may take place hic et ubique, wherever the organization is exposed to morbid agencies.

ART. V. Observations on Cholera Infantum. By Nathaniel Potter, M. D. Professor of Pathology and the Practice of Medicine in the University of Maryland, &c.

The lamentable fatality of the disease which has obtained the nosological appellation, Cholera Infantum, infests our populous cities in summer, and is now looked for in our villages and even among our husbandmen as an annual visiter, seems to have excited less public sympathy, and to have attracted less professional attention than any disease so pernicious. The few writers who have attempted to explore its causes or its character, have been less fortunate than in the investigation of any disease with which they have been so long familiar.

Cholera Infantum would seem to have been peculiar to these United States, and may be still so considered, unless we admit as a parallel, that which has been recently recognized and described by Cruveilhier* and Billard† of France, and still later by Doctor Copeland,‡ who asserts that it is now to be found in

* Cruveilhier wrote in 1821, and entitles the disease he describes Maladei Gastro-Intestinale—vide page 30.
† Billard in 1828, under the name Gastro Foliculeuse—vide 323.
‡ Copeland, Dictionary of Practical Medicine, vol. 1. p. 335.
the metropolis of Great Britain. It is sufficiently clear, that the disease is novel to them all, and is viewed in the light of one of those physical occurrences which occasionally gives rise to diseases before unknown, while others from causes equally inscrutable disappear. As we propose to descend to an analysis of the causes and pathology of the malady, we will offer no specific criticism or remarks on the opinions advanced by those eminent authorities, further than to admit that their descriptions bear a strong analogy to the indigenous disease of our country, if they are not entirely identified.

The word cholera is now so generally received, that we adopt it rather in conformity to usage than from a conviction of its propriety. If we accept only one, or all the derivations that have been assigned to it, they do not correspond with the pathology displayed by dissection, and the difficulty of assigning any name that would embrace the morbid phenomena affecting so many organs is so enhanced by the imperfection of all language, that it would seem insuperable. If we assign a satisfactory pathology, the name is of little importance; and in truth no name would enlighten its essential character, or direct our therapeutics.

To portray the features of the disease with more perspicuity, it will be necessary to recur to its early history. It would be difficult to retrace it to its origin, although it is not very remote. It was unknown to the aborigines of our continent; and the first settlers of the colonies have left us no record of its existence. It was not until towns and villages were formed into an aggregated population, and more especially since they have grown into more populous cities, that cholera has been engendered. It was first observed in our Atlantic towns, which grew more rapidly, and soonest became flourishing cities. It had no "local habitation or a name," even in the southern and middle states, till it was described by Doctor Rush, in the year 1773, and was copied from his written account published in 1777. Since that period it has been observed on a larger scale, and has been extended to the plantations and farms in the southern and middle states. In its country localities, it has uniformly increased in the ratio of the insolation of the soil. The first settlements, which were soonest cleared of woods and underwood, and therefore most exposed to solar heat, were the first seats of cholera infantum.

The etiology of some diseases constitutes a difficult problem. The causes are sometimes inscrutable to human research; and
if we take a retrospective view of the different departments of medical science, we perceive that this branch has been cultivated with less success than any other. Notwithstanding this general defect, so much to be regretted, it is a consideration of the highest importance, because a knowledge of the remote cause not only elucidates the pathology, but often indicates the means of an easy prophylaxis. There cannot be a more vehement presumption in favour of this opinion, than the example in question. The various remote causes to which it has been ascribed are as many irrefragible proofs of the futility of the hypotheses that have been suggested to account for it; and many of the imperfect measures adopted to cure it, flow necessarily from erroneous views of its pathology, under the presumption that it owes its existence to causes that will not explain the morbid phenomena. The most natural avenue to the pathology of a disease is first through its remote cause, and secondly the organism of the part upon which it operates. Every cause exerts a specific effect, both as to its own inherent nature, and the condition of the part primarily affected. The first, or remote cause confers principally the quality, and the physical condition of the body, the quantity of the disease, although the intensity of the cause sometimes foments diseased action. A variety of causes have been assigned to account for the process by which this disease is generated, which, if they were true, seem to have been unphilosophically concatenated, and therefore are so perverted that they cannot be placed in the relation of cause and effect. Remote and exciting causes have been confounded, and the effects of either have been constantly ascribed to the other. It would therefore seem proper to distinguish between those that are primary and essential, and such as are incidental, and not always necessary.

The first and most generally received opinion as regards the origin of the disease, is either hypothetical or drawn from a vague analogy, and a superficial examination is sufficient to refute it. As it was the first suggested, it has been adopted without scrutiny. Marsh effluvia, which cover so wide a field in the philosophy of causes has been enlisted to account for this among a tribe of other diseases. There are many considerations that lead us to conclude that malaria has no agency in the matter, and that there is another more natural and authentic source to which alone it can be referred, in the first instance. Cholera appears, as the first indication of the diseases of summer, even in May, when the impression of heat is strong and sudden,
before the process of vegetable putrefaction can evolve any gaseous emanation. The process by which the diseases of autumn are generated is much slower, and accordingly, we find the children’s disease in full operation, while there is not an intermittent or remittent to be found. Among the early cases of children, there are no intermittent or remittents in adults, except occasionally an individual who has carried the predisposition through the winter from the preceding autumn. The symptoms of the two diseases present so many discrepancies, that they cannot be identified, by any reasoning that ingenuity or sophistry can invent. The summer disease is never preceded by a formal chill, and never intermits. Even where it indistinctly resembles a remittent, it is not subject to distinct exacerbations, and is not mitigated by a periodical sweat. The type of cholera infantum is more continued, is attended by less heat, which is more generally diffused in the paroxysms of miasmatic fevers. The tongue is less changed in cholera, and while it is white, is less prone to become brown or yellow than in remitting fever. A symptomatic diarrhea, does not properly belong to the diseases of malaria, and when it does occur, it is in autumn, under the influence of a high temperature, and in all such cases the totus ensemble presents the aspect of a compound affection, the result of the two causes combined.—This compound is not so common in our country as in some others. It has been well described by Dr. Wade of Bengal.* The total failure of the remedies so successfully employed in intermittent diseases shows an equal difference in their pathology. Tonics and all kinds of stimulants are utterly unavailing during the more prominent symptoms, and are only incidentally necessary as corroborants. If the miasmatic theory were founded on fact, the removal of children within the sphere of malaria must of necessity impregnate some of them with the cause, and intermitents would be the result. That this is not the consequence, every observer can testify. They are never found epidemic, at the same time, or in the same place.†

Other etiologists, who could not account for the phenomena of the disease under circumstances so incongruous, under the presumption that malaria originated cholera, suggested another

* Vide Wade on the Diseases of Bengal.
† During the prevalence of intermitents, children are equally as liable to become diseased as adults, whereas neither the adolescent nor adults contract the other form of fever.
hypothesis, equally untenable. They indulged their imaginations in search of a cause, and finally drew the conclusion, that the cause was negative, and that a deficiency of oxygen in the atmosphere rendered it physically impossible for the lungs to perform their office in oxygenating the blood. Under this visionary theory, framed without experiment or any rational foundation, they proposed to increase the quantity of vital air by artificial means. Some of them were so transported with this scheme, that they invented an apparatus expressly for the purpose of manufacturing and diffusing oxygen in a more concentrated form through the apartments of children in summer. This delusion was probably suggested by the fancied victory of Dr. Beddoes over some other diseases in a highly oxygenated atmosphere. The friends of this doctrine in their application of the gas to the treatment of cholera infantum, were scarcely favored by a shade of analogy, and the theory evaporated almost without an experiment.

Worms were formerly supposed to create this disease, and this opinion was refuted by Dr. Rush at an early period of its history. Independent of the consideration, that worms are not often found in children laboring under cholera, than in other fevers, the symptoms arising from them are at variance with those which constitute cholera. An idiopathic worm fever is a rare occurrence, and is a mere chronic affection, with a peculiar series of symptoms that are unknown in the cholera or any other disease of children. Except the diarrhea which sometimes belongs to verminous affections, there is no symptom common to both; and if we examine the bodies of children who are supposed to have died of worm fevers, we almost always find appearances that cannot be rightfully ascribed to the ravages of worms.

If we analyze all the circumstances under which the disease is gradually evolved, in the infantile system, and duly estimate their influence, it cannot be very difficult to find a rationale of the whole process of causation. What palpable cause can be assigned in early summer so obvious as the overwhelming influence of a high temperature, upon the exquisitely sensitive nervous system of children? It is scarcely possible to resist the conclusion, that the matter of heat gives the first impulse, and that it originates a peculiar train of symptoms, in the relative condition of infancy and childhood, for which no other cause can account. Unless we are deceived, we must allow a much greater latitude to this all pervading element, which will be
found to exert a powerful influence on animate matter. In its action on the sentient system, it seems to be demonstrated, that it constitutes the first link in the chain of causation of a distinct genus of diseases, if it be possible to arrange them into several species, according to the organisms involved. If we were to attempt to frame a synoptical table of diseases, it would be impossible to resist the evidences of the power of heat in originating a genus peculiar to itself. Without such an active principle, both the varieties of cholera, some of those of dysentery, summer diarrhoea, many cases of chronic hepatitis, as well as functional irregularities of the liver, would be anomalies in nosology.

If we refer to the character of our climate, it will shew why cholera is so much more clearly defined here than in other countries. It is not only more variable than any other, but the vicissitudes are more frequent, and the changes of temperature greater and more sudden. The disparity between winter and summer shews a contrast to which there is no parallel in any other country. The low temperature of winter accumulates the excitability, and renders the diseases of spring and summer more positive and inflammatory in the middle states than they are in any equal area in either continent. In addition to this, we have no gradually opening spring, but a sudden influx of heat, in the latter vernal months, which constitutes a sudden transition to summer. On whatever part of the sentient system the matter of heat makes its first and greatest impression, it disturbs the healthful economy of many of the most important functionaries of the body, and through them, indirectly enervates the whole system. It exerts a deadly influence on the brain, either through the lungs or by its action on the capillary system, or on both, and in many cases the sensorium is one of the principal seats of disease and its implication very often the cause of death. The stomach, the great sentinel,—the receptacle of all the materials to be manufactured for the sustenance and growth of the body, is equally sensible to the cause, and reflects disease to almost every other department. The intestines are deeply involved in the morbid process, and almost all autopsic examinations discover the ravages of inflammation, and explain one of the most remarkable symptoms, the excessive heat over the whole abdomen, while other parts, especially the lower extremities, are far below the temperature of health. They are intimately associated with the liver, and the whole portal circle becomes involved. Besides those predisponent effects, which may
alone evolve the symptoms, the infantile stomach frequently abounds with a morbid acid which farther disarranges its functions and increases the predisposition.

The entire absence of the disease in other countries where the climate is dissimilar, strengthens the opinion we have adopted. It is not to be found in countries uniformly hot or cold. In the former, the excitement becomes stationary under the constant stimulus of heat. In the latter, the excitability is less sensitive, under a constant low temperature. In either, there are few extremes and few sudden changes. Conformably to this principle, cholera infantum is unknown in Asia, and Africa, and equally a stranger in the north of Europe. In our own country, the southern are less liable to it than the middle states, and it there is less inflammatory. Still farther north, where the heat is less intense, and its duration shorter, children are exempted from cholera, unless from a sudden elevation of temperature, which is usually short, and where it is increased, by the crowded population of cities and thickly inhabited towns.

Another fact which is familiar to all who are conversant with the disease, further illustrates the agency of heat. A fall of four or five degrees of the thermometer, after a rain, which is usually followed by a western wind, not only suspends the action of the remote cause, but is salutary to the sick, who, unless in the extremity of illness, revive from a state of prostration, and so long as there is no increase of heat, the number of cases invariably diminishes. Corresponding with these facts, while the number of cases is stationary, or increasing in all June and July, the longer and cooler nights of August curtail the bills of mortality, till the disease is obliterated, by the gradual diminution of heat in autumn.

Another argument in favour of the almost exclusive agency of heat, as a remote cause, is derived from a single act which induces a greater number of cases and a more aggravated degree of cholera, than any other. A sudden or long continued exposure to the sun, seldom fails to excite it. An accurate attention to the progress of a case, will facilitate a knowledge of its general character, by showing that none of the other auxiliary agents to which so much importance has been attached, can originate it. They all operate at other times, and in other countries, and nevertheless, they cannot furnish an example of the specific disease, which can only be derived from heat, its specific cause. Neither weaning children, feeding them on coarse and indigestible aliments, unripe fruits, dentition, suppressed perspiration, reple-
tion, inanition, or any other accident can complete a case of cholera without the sine qua non, heat.

The prophylactic means are predicated upon an evasion of the remote and proximate causes, and it is necessary to guard against the latter, because the remote cause will not in every case give rise to the disease, unless some of the latter co-operate with it. The measures to be applied as preventives, illustrate the predisposition, and while they show the practicability of averting the disease, lead to its pathology and treatment.

To avoid the injurious effects of heat, it is not only necessary to prevent its direct influence, but to protect children against all the visissitudes of the weather, which, without great care, become exciting causes. Every thing that affects any unusual excitement or diminution of healthy action, especially of the stomach, in this critical state of predisposition gives immediate occasion to the disease. The skin of children should be kept clean, that no obstruction to insensible perspiration may take place. This object will be promoted by wearing flannel in summer. No effluvium generated about the persons or apartments of children should be allowed to accumulate. It will molest the respiration, and contribute to invite disease by weakening the nerves. The connection between the skin and organs principally invaded by the disease is very intimate, and therefore of great importance in the prophylaxis. Before the symptoms are unfolded, when none but a physician could perceive it, there is a manifest change in the capillary circulation. Under some pallor, and perhaps some, impairment of appetite, the skin becomes relaxed, and its power of contraction is diminished. In this state, and at all times in warm weather, unless during the existence of actual disease, children should be bathed daily in cold water. It removes the debility of heat, gives tone to the capillaries, and through them to the brain and whole sympathetic system. Children should be carefully attended to during sleep, lest they become exposed by throwing off the bed-clothes; and to obviate the effects of such exposure, when a cooler atmosphere in the morning would be more dangerous, their night dresses should cover their extremities. Children should not be weaned between the months of May and October. Nine tenths of those who are deprived of the breast in June and July suffer an attack of cholera. Independent of the danger from this cause, it is necessary that the supply of milk should be sufficient. The mother should regulate her own regimen so that it can occasion no change in the
secretion, by which its quality may affect the child's stomach. Children who are nourished by their mother's milk, should not be fed by any other aliment, till they are provided with teeth to masticate it. For this reason, nursing them two or even three summers protects them most effectually against an attack. The second summer is the more likely to induce the disease, and only because it is then that children are first fed with solids and other articles that offend the stomach. It is true that every article thus prematurely introduced into the stomachs of children does not injure them, and it is as true, that there are some that nothing will injure; but these are exceptions to a very general rule. Children should be indulged with as much exercise as they can bear without fatigue, and this should be in the open air, if it be practical, while they are protected from the rays of the sun, directly or indirectly. The evenings and mornings should be chosen for this purpose.

These precautions enable the tender system to sustain the irritation of another vexatious exciting cause. Teething so often intervenes under the enfeebling operation of the remote cause, that its influence cannot be evaded, and it is sometimes inexorable, by means purely medicinal: If during the progress of dentition, the gums should be swollen and protruded, incision offers a prospect, though a precarious one, of relief, and should not be omitted. In many the remote cause furnishes all the means of disease, and dentition only follows in the train of other consequences.

A removal to the country before or at the commencement of summer is a practice dictated by prudence, because it is founded in general experience. Notwithstanding its acknowledged advantages, it is not entitled to the high regard which it justly acquired, at an earlier period of our medical history, whether it is viewed in anticipation or proposed as a cure. The failure of this practice in conferring its wanted benefit, adds another strong presumption that heat is the cause of the disease. Since the country has been generally cleared and stripped of its natural vegetable investments, it does not always cure it; and it is well known that there are many farms that were formerly resorted to as places of refuge, which are now infested with cholera; nevertheless the proper choice of a place under different circumstances still affords great advantages. A hut, surrounded by woods, with only a yard and kitchen garden, is the most eligible spot that can be selected as an asylum against the disease, although there are many small settlements, only occupied a few
years, that serve as a sufficient protection. In traversing the forests of Caroline county, in this state, in the summer of 1796, while the disease might be said to have been epidemic in the old settlements, the new dwellings and solitary log houses, invested by a thick and rich foliage, presented, without an exception, children with blooming complexions, the emblem of health.

We have already intimated that every one exposed to the remote cause, is not actually diseased, so far as to become the subject of medical treatment. During the season of cholera, every child feels the effects of heat in excess, as may be noticed by an accustomed observer. It is easy to note some falling off of the vital powers, and many of those premonitory signs lead to a more positive state. Predisposition is the first effect of the remote cause, and is considered by some as a disease in its miniature state. It is not actual disease, nor is it perfect health: it is not a positive ill, but that privative condition next to disease, which it directly invites.

We may descry this embryo state by a strict scrutiny, almost imperceptibly unfolding itself into a variety of shades, more especially when the disease is about to assume the more chronic forms. Children become pallid, the skin becomes dryer and less elastic, the process of absorption commences in the muscles, and their power of contractility is diminished, the eye loses its lustre, and the extremities become cooler as the blood recedes from the extreme vessels, especially those more distant from the heart. The child becomes fretful and restless, and its sleep is interrupted and imperfect, or it is disposed to coma, if the brain be the more diseased organ, and a disposition to convulsions is discovered by frequent and sudden subsultus. With these symptoms, and in some earlier in the forming state of fever, the stomach and intestines show the deep concern they feel, by ejecting almost every thing taken into them. It very frequently happens that the mother's milk is first rejected, and in many the evacuations are alternated, or synchronous. Intense thirst succeeds to this series of symptoms, and nothing is so grateful as cold water, which does not quench the constant cravings of the patient. In this stage of the disease, the symptoms of fever are to be noticed by some increase of external heat, a frequent pulse, and hurried respiration, which evince the existence of congestion. The degree of disease in the viscera concerned, is so different in different subjects, that no uniform description will apply to them all; and there is no disease that presents so great an inequality in the quantity of
fever. The dejections from the stomach at first consist of the ingesta, mixed in part with a vitiating secretion of the stomach, which sometimes contains an acid, and is frequently tinged by the coloring matter of bile with a thin watery fluid which is secreted by the liver and intestines, which is entirely perverted from the quality of bile in health. The alvine excretions are as various as those ejected from the stomach according to the existing condition of the liver. Some shade of green is the more common, and in some it wears a dark muddy appearance. With an abundant acid, both the dejections from the stomach and intestines are blue, or inclined to purple, often resembling a solution of indigo. Although these matters are so discolored by hepatic action, the green color, is dissipated by exposure to the atmosphere during the day; but, they retain their various hues, in the absence of light. If they are white after exposure during the day, they seem to be destitute of all the properties of bile, except the color. In all their varieties, there seems to be a perverted or deficient hepatic secretion. During the suspension of the secretory process in the liver, the gall bladder is entirely empty, or contains only a small portion of inspissated, dark matter, composed of bile and mucus. When the secretion begins to be restored, the discharges are fetid in the extreme, and show every shade from a light tinge of green to a deep black. They are various, and of all the intermediate shades from a light, clay color to a deep ferruginous brown.—In the early stages, they are frequently mixed with air, which cannot be referred to any thing taken into the stomach, but is probably secreted by the intestines. In the more advanced state, and under less favorable symptoms, the abdomen is tumid and hard, and the distension is found to be occasioned by a gaseous matter in the intestines. It is not found in the cavity of the abdomen, and is not derived from the peritoneum, which is seldom or never involved in the disease. In the latter stages, we sometimes find indurated masses, dark green or black, or of an ash color, discharged in large quantities, which would seem to have been long retained, while the intestines have been contracted upon them. It is probable they have been impeded in their passage through the colon. We have found them, in our autopsic inquiries in that intestine, and sometimes in the ileum. Blood is occasionally voided in cholera, but when the disease is well defined, it is not dysenteric. It is not mixed with mucus, and diffused among the mass evacuated from the rectum, but is found in small, separate drops or stripes, and is
florid. It proceeds from the rupture of the small arteries that terminate on the surface of the mucous membrane. The rationale of all the symptoms, as well as the cause of death, will be explained by the appearances to be found in the autopsic examination.

It has been already signified that this disease is to be found under various gradations, and this is more remarkable in some years than others, as well as in different cases at the same time; but it must not be omitted, that it presents the most deceitful aspect. In some cases, although there appears to be no very manifest signs of a strong reaction, at the accession the viscera are deeply implicated, and the cure becomes difficult. The deep concern of the stomach, and the influence of its distant sympathies, impose a restraint upon the heart and sensorium, while disease is lurking in the interior. After death, this spurious appearance of exhaustion is explained by the engorged and inflamed condition of the viscera.

By a detail of these morbid appearances, the necessity of a special, prompt and energetic treatment, will be made apparent.

Previous to the late improvements in anatomy, when the component parts of the body were not distinguished into different organisms, the system in a morbid state was viewed too often in its totality, and dissections were neglected. Pathological anatomy now reflects new lights upon diseases, and seems to have approached demonstration in cholera infantum, and it is well understood, that among the parts which are most deeply injured, the brain bears a conspicuous part. Some of the morbid appearances of this, as well as the other organs, have been incidentally noticed in connection with the symptoms they represent.

Water in the ventricles, has long been known as one of the consequences of a diseased brain in cholera, but the circumstances under which it is deposited are not always the same, and therefore the treatment required must be different. Although it has received the name of Hydrocephalus Internus, it is not water, but an arterial secretion, which takes place, either in consequence of a sudden and violent reaction, soon after the accession, or later, under a slow but continued fever, less violent, but more insidious. In the former, children frequently die of convulsions, which appear on the first, second or third day, though they are occasionally to be met with later, and are then usually the harbingers of death. In this state, distinct marks
of inflammation will be found, not only in the arachnoid membrane, but in the brain, dura and pia mater. If the disease is not arrested, the deposition commences, and more or less of the effused fluid is found in the ventricles.

In the other, the deposition is slower and more copious, and the secondary symptoms succeed, constituting the last stage. In this state the arachnoid membrane seems to be the source whence the fluid is secreted. When it is found in considerable quantity, there seems to remain no distinct marks of inflammation, although the membrane is often thickened and is found softened and opaque.

The liver usually presents a dark hue, inclining to red, and the veins are turgid. The venous blood is not so dark as it is found to be in some other diseases.

The spleen is frequently much distended, and is often sensitive when pressed. The venous blood is darker than in any of the other viscera, and the tumour diminishes with the convalescence, and never remains diseased as it does after intermitting fever. The tenderness within the abdomen, which is so exquisite, especially during convalescence, is to be referred to the intestines and stomach, principally to the intestines.

The stomach, although its healthful functions are so much molested and disarranged, does not discover so deep a concern in the morbid process as the intestines. We find the mucous membrane inflamed more or less, and an evident venous congestion, and after a chronic continuance, that membrane is thickened, resembling the appearances to be noted in the intestines, though less manifest.

The intestines and their appendages seem to be implicated in all cases. The inflammation which commences in the mucous membrane, very frequently involves the mesenteric glands, which are swollen to a great degree. In the more chronic and protracted cases, the office of the glands seem to be altogether perverted. If it were admitted that the stomach could effect a solution of the aliments received, it would not be possible, for the glands to perform their function in preparing and elaborating the chyle and fitting it for reception into the circulation. In this enlarged and indurated state of the mesenteric glands, a diarrhoea is constantly to be observed, and if the glands could discharge their office, they are deprived of the materials. The enlargement of the mesenteric glands is more likely to be found in scrofulous children.
In the event of a protracted case, especially if it succeed the acute form, aphptha are seen upon the tongue, in the fauces, oesophagus, stomach and whole intestinal canal. But there is another and deeper wound inflicted on the mucous tissue of the intestines. It is not only thickened and softened, but the follicular structure is ulcerated, and this state sometimes involves the other membranes. Whether this appearance is first aphpthous, and subsequently ulcerous, we would not pretend to decide. In aphptha we find only an elevated cuticle covering a mucus secreted beneath it; and as there is no perithelium in the intestines, the mucous membrane may not only modify the appearance, but permit a deeper affection to ensue. We are not sure that the minute injury in the mucous membrane, can be strictly called aphptha. They appear rather inclining to red, and are less prominent. Although we sometimes find inflammation diffused over the intestines in patches and stripes of various forms, especially under the more active forms, the appearances are very different, in other and more chronic affections. In some, the marks of inflammation present a dark ferruginous hue, as if the membrane had been mechanically injured, and the blood pressed into the arteries by force. This is a common appearance when the case has been accompanied with much fever, and has run down into the more chronic state. Besides this appearance, when we examine the intestinal canal, we often find the membrane opaque, more or less indurated, wearing the appearance of parboiled membrane, or that which is presented, by searing living matter by boiling water.

The treatment of the disease has long been a problem, the solution of which is considered doubtful by some, but it must be admitted that great improvements have been made, and that under favorable circumstances it can generally be cured. Under an extreme of temperature, without a proper dietetic management, and a vigilant attention in averting the exciting causes already enumerated, it is sometimes inexorable; and our failure is rather to be ascribed to the want of that aid which it is the duty of a good nurse to bestow, than the inefficiency of medicine.

If the pathology we have attempted to explain, has not deceived us, the obstacles to a successful practice, are not insuperable. We admit that we might have presented the morbid appearances in a more detailed form; but we can but persuade ourselves, that they are sufficiently clear to reveal the general features of the disease, from which the indications of cure may
be safely deduced. The difficulty of curing violent and dangerous diseases, arises from the great injury done to some vital organ, which exerts so deadly an influence over the vital principle, that no medicine can repair the injury. This is more to be regretted, when the local impression can only be removed by such means as must diminish the general strength. In such cases, while the indication is plain, our hands are arrested, and our failure is to be attributed to the disabled condition of the body, and not to the inefficiency of the remedies, which in a less diseased state would succeed. This difficulty frequently occurs in all congested diseases, that are primarily occasioned by some powerful cause, which often impairs the excitability so far, that the capacity of reaction is nearly extinguished. The pathology and symptoms of cholera infantum lead irresistibly to the conclusion, that this condition of the infantile system often opposes the greatest impediment to a successful treatment.

The disease, unless it be arrested by strong measures, consists, like most other fevers, of different degrees, which succeed to each other, variously as to time and quantity, according to the previous condition of the organs affected, and the intensity of the cause. These several degrees have been divided into distinct stages, according to the fancy of physicians. If they were more stationary or permanent, some benefit might result in designating the appropriate time of prescribing the necessary remedies; but they are too artificial, and it is often the imagination and not the judgment that makes such undefined lines between things that differ only in their degrees. The quantity of disease as it varies in its progress, cannot change the essential character of the action in which it consists, and hence the visionary indications drawn from hypothetical premises often lead to disappointment and defeat. If we ascertain the organ most deeply injured, and direct our means accordingly, we fulfill the whole indication of cure.

The means employed have been so numerous, and the reports of their effects so contradictory, that no conclusion can be fairly drawn from them; unless we conclude, that the multiplicity of medicines and specifics proposed, are so many evidences of their utter incompetency. If we refer to the early history of this or any other dangerous disease, it will be readily perceived, that the successful management is always accomplished by a few simple means. Until the recent discoveries in physiological anatomy increased the facilities of pathological investigation, and assigned a seat to this disease and many
others, none but a random and empirical practice could be pur-
sued. The indiscriminate use of emetics, alkalies, opium, and
astringents, was founded upon no fixed principle, and their
total failure was a monumental proof of the darkness that hung
over the real character of the disease. The name and the enu-
meration of the symptoms, presented a dim romantic vision, as
different from the real indications of cure, as fiction is from ma-
thematical demonstration. Until mercury and blood letting,
general or local, were introduced, the whole apparatus medica-
minum were expletives in the treatment.

We will endeavor to adapt these and some other remedies to
the case, by applying them to the pathological condition of the
organs concerned. The approximation of the diseased state,
and the indications of cure are natural and almost inseparable.

In all the higher degrees of fever where the pulses are tense,
however small or frequent, bleeding from the arm is necessary,
and if the brain be deeply impressed, the temporal artery may
be opened. So imperative is the diseased state of this organ,
that a less efficient mode of depletion will not avail. We are
well aware, that the case does not always demand so en-
ergetic a practice; but we can affirm, from reiterated experi-
ence, that in certain seasons, and in some cases every season,
neither cupping or leeching, are competent means of depletion.
They are too often relied on in such emergencies, to the exclu-
sion of the only radical remedy in destroying inflammation.—
We cannot have a clearer evidence of the efficacy of general
bleeding, than the notorious fact, that none of the secondary
consequences that so frequently follow all temporising mea-
sures, are never seen after early, general blood letting, carried
to a sufficient extent. A tendency to convulsions, their actual
presence, or the faintest indication of effusion pressing upon the
brain, speak a language that calls loudly for the lancet. It is
true, there is a time when local bleeding may, with propriety,
be called to the aid of the lancet; and there are many cases in
which it is clearly indicated in the first instance. It is only
in the more exalted condition of morbid action, that I condemn
local bleeding as futile. If such be the necessity of direct and
radical means when the brain is the seat of disease, what reason
can be assigned, for the neglect of the same means in affections
of the stomach, intestines, or liver, laboring under deep con-
gestion, and their accompanying state of fever? The stomach
and neighboring organs do not represent such unequivocal
signs of active disease as the brain and its appendages: they exhibit no very evident marks of approaching disorganization, and from the nature of their organization they cannot. They are intimately associated with the heart, which they depress, and the degree of disease existing in them is not so palpably displayed in the general circulation. In this state of things, bleeding, general and local, are clearly indicated, and the results are as decisive as in any other disease. The apparent general prostration seems to be the usual objection, more particularly to general bleeding. To the indiscriminate use of the lancet, not wielded by judicious hands, we also object, while we protest against that imaginary timidity which sees debility, while it overlooks latent local disease which is preying upon the great functionaries of life. We are not insensible to the possibility of the system sinking under bleeding, and such is occasionally the result; but to do justice, we must reason from other premises. We ask how many cases of fever and inflammation are lost from debility, however it may be induced, compared with the number who die from disorganization?—Death from debility alone is a rare occurrence. Without free and active direct evacuations the patient must be lost; with them it may be saved.

In an inferior degree of the disease, when the signs are less manifest, we resort to the less powerful aids of leeches. They often render us essential service, both in cases not highly aggravated in the beginning, or in such as have fallen into a less violent state. Both the evacuations of blood lessen fever, calm the commotions of the stomach and intestines, restore the secretion of the liver, prevent the enlargement of the spleen, and diffuse heat more equally over the whole surface. If they do not effect this alone, and to the desired extent, they prepare the way for the co-operation of the next and most potent remedy, which, in another state of the disease, is almost our only hope.

In a very great majority of cases, in ordinary seasons, general blood letting is not indicated, and there are many in which even leeching would not avail.* There are some in which the signs of general fever are scarcely appreciable. In all such cases, in their earlier stages, mercury seems to be our safest resource. While we employ bleeding in the more active state of fever, we avail ourselves of the virtues of the proto chloride of

* Leeches should be applied along the spinal column, as well as over the stomach. They seem to be more efficient in affections of the abdominal visceras, where they are applied near the dorsal vertebrae.
mercury to exonerate the viscera from congestion, and we are sometimes obliged to aid its aperient effects, by more certain cathartics. In such cases, the dose should be proportioned to the degree of the local affection and fever; and during the existence of this state, it may be repeated according to the duration and obstinacy of the symptoms; but all doses of calomel intended as cathartics, should be restricted to the more active states of fever. In an enfeebled state of the general circulation, their sedative effects prostrate the whole body, even although they may not have occasioned a single evacuation from the intestines, and in some children, they induce a hypercatharsis which irretrievably prostrates the vital powers. This overbearing effect of doses disproportioned to the weakness and sensibility of the stomach and intestines, cast an unmerited reflection on the virtues of mercury, long after it was well ascertained that a prudent economy in its management by smaller doses had succeeded to the admiration and astonishment of physicians. The smallness of the doses actually required, has been considered by those who never experienced the benefits of the practice, as too trivial and temporising. If they will vigilantly observe the effects of the particular article employed in this or any other fever or inflammation, they may amend their plea against minute doses, and correct their propensity for larger portions. Calomel, if not entirely sui generis in its effects, seems to be a general salivant, wheresoever it comes in contact with a mucous surface. When received into the stomach, it may increase its secretion, and alter it; but it would seem, that it is soon transferred to the upper intestines, on which it exerts a strong secretory influence, and effects an intestinal salivation, which exonerates not only the follicular and mucous vessels, but those of the stomach and liver, and all their dependencies. That such is the necessary consequence of calomel, is well ascertained, by the quality of the secretions, which is neither mucus nor serum, but a specific fluid exorted by the specific action of mercury.

In the cases of children, aged above eighteen months, half a grain of calomel, morning, noon and night is enough, and under that age, half that quantity. This portion, it is admitted, does not often discover its powers immediately; and as it can only act by a slow and gradually increased secretion, the first dawning of convalescence are not very easily perceived. They are notwithstanding discernable, by the less frequent motions of the stomach and intestines, smaller and more consistent evacuations, and less fever and heat, which is more equally diffused over the sur-
face. This medicine may be safely confided in, in all cases where the high degree of fever, and the threatening of a fixed local affection do not imperatively call for general blood letting, while the local abstraction of blood is indicated, and after it can no longer be sanctioned, under a greater reduction of the vital energies. If coma, irritability of stomach or intestines, with vitiated dejections, are still to be observed, this medicine, uncombined with any other, is the most potential. As long as the disease wears one of the symptoms of cholera, it is safe and effectual, if the case be medicable. It is both unnecessary and improper to urge it, after the disease is subjugated, when we have to contend only with the convalescent state, which is a compound of debility, and exquisite morbid excitability. There is a state of the stomach, and perhaps of the intestines, in which the power of calomel seems to be abated, if it is not inert. Whether this depends upon the quantity or the quality of an increased or vitiated secretion, it is not easy to determine. It is certain, that alkaline medicines frequently correct it. A few grains of the sub-carbonate of potash or soda, give activity to mercury, and an emetic is sometimes necessary, although there are but few occasions that require this mode of evacuation.

Emetics were formerly ranked among the radical means of cure, and by some they are still held in high estimation. If the views we adopt are founded in a correct pathology, their use must be very limited. Except for the purpose already noticed, perhaps they are only accommodated to a state of predisposition, in which they may be used to avert the operation of exciting causes. In the incipient state of predisposing weakness, they impel the blood to the extreme vessels, and obviate forming congestion, but are seldom followed by a permanent abatement of the symptoms, when the disease has been established. They often induce a deceitful calm and a temporary mitigation, which is generally followed by a return of accumulated suffering, from increased irritability of stomach, emesis, diarrhoea and prostration. In the higher degrees of local affection, they manifestly increase congestion, and add fuel to the flame. In cerebral affections, they impel the blood into the brain, and foment the symptoms, while they waste the corporeal powers, and render the action of the more appropriate means more uncertain. If the stomach has been offended by any of the ingesta, which interrupts the process of digestion, and thus oppresses the vital powers associated with it, an emetic, the most mild, which leaves the least nausea, and which acts the most promptly is all that
can be required. For this purpose, ipecacuanha, or a solution of common salt, are least likely to occasion the mischief arising from the more sickening and lasting impression of stronger articles.

_Cathartics_ are incidentally required, although the more active are not necessary. After the exhibition of calomel, in minute doses, we find the number of the alvine discharges increased, until some alteration in the secretion is effected, and a gradual abatement of the symptoms is evident. In this stage of the treatment, it is sometimes necessary to preserve a soluble state of the intestines, by milder means, such as the sub-carbonate of magnesia, oleum ricini or small doses of rhubarb. The first should be preferred, where an acid is to be corrected. The oil is more certain and less irritating, in that sensitive state which succeeds to inflammation of the mucous membrane; and rhubarb, when it does not excite irritation, in small doses, seems to impart a corroborating influence. Under a judicious employment of calomel, those aperients are not often necessary.

_Injections_ may incidentally become useful. In the advanced and prostrated state of the intestines, with great tenderness, which is apt to follow the higher degrees of fever, pain calls for a demulcent anodyne, which cannot be made so effectual in any other form, as an enema. Laudanum, with a solution of starch as a vehicle, is one of the more eligible prescriptions for this purpose. The restlessness of the patient, and the absence of sleep, which so often attend the latter stages, and even convalescence, may seem to require an anodyne to be introduced through the stomach, and it is sometimes beneficial; but all the preparations of opium should be avoided, unless the indication is very imperative.

_Alkalies_ were, for a time, among the fashionable routine of medicines relied on in the treatment, and as they were supposed to possess some specific virtue, were indiscriminately employed. From their known properties, they could have been useful in only two ways. They either acted by neutralizing an acid, or they imparted a stimulus to the weakened stomach or intestines. The first we have conceded to them. The latter is equivocal and improbable, unless it be where we have to contend with the consequence of the disease only. A weak solution of the sub-carbonates of potash, soda, and lime, are retained in the retinue of medicine, in union with anodynes or astringents, and although they seem to facilitate the progress of convalescence, might very generally be superseded, by a select choice of arti-
cles from the materia alimentaria, some of which are always more congenial to the enfeebled condition of the stomach.

The whole class of astringents have been arrayed against cholera, and at one time, either alone, or united to some preparation of opium, took precedence of all other medicine. The dread of exhaustion from repeated intestinal evacuations, under an impression that they were occasioned by relaxation or atony, gave to this class of medicine a fictitious claim, which experience has proved to be unmerited. Instead of appropriating them to the weakened condition of the organ, after the expiration of fever and inflammation, they were exhibited to corrugate the stomach and intestines in all the activity of morbid action. Independent of the numerous combinations of the whole tribe with narcotics, sulphate of alumine, kino, cortex simaruba, cortex querci rubrae, sanguis draconis, and many other cumberers of the ground, engrossed the whole field of practice for half a century, until they were crowded out of the ranks by the alkalies. If, in the progress of the disease, these agents have become necessary to restore the impaired tone of the first passages, the necessity is frequently the artificial product of neglected antiphlogistic measures. Fever and inflammation once subsided, the stomach seldom requires such unnatural auxiliaries, but nutriment its natural ally.

External applications are sometimes employed, and may be useful auxiliaries in their proper places. Blisters have been applied near the several local affections; the brain, stomach, and intestines, under the impression that they arrest the progress of debility; we are satisfied, after reiterated experience, that they are usually incompetent to answer this indication. In the minor degrees of fever, this action is only temporary. In the last and abject state of prostration they are inert; and with a strong local affection, under congestion, they scarcely ever succeed; they stimulate too much. It is probable that epispastics are never as useful in affections of the mucous, as they are in that of the serous membranes. Sinapisms are used as a last resort, in extreme cases, and in some produce a temporary stimulation, which can scarcely ever be maintained to any ultimate good. Nearly the same remarks may be applied to all the external means, such as bathing the body in warm alcoholic solutions, such as brandy or rum. Although they do, in a few instances, seem to resuscitate the declining strength, they rarely succeed. The warm bath is another equivocal mode of giving artificial excitement through the capillary system. Before the general
strength is too far impaired, it may diffuse excitement and invite the circulation to the extreme vessels; but like the other external means, is seldom followed by a crisis, or any lasting effect.

There is one external application which seems to be better entitled to the consideration of physicians, although it has been objected to as hazardous. In the early stages, when the extreme heat is excessive, *sponging* the skin with cold water diminishes the pulses, and seems to equalize the temperature of the whole external surface. The temperature of the water should not be very low, but may be lessened at each successive application. It may be employed at sixty degrees, and diminished according to the effect it produces.

The preceding remarks have been suggested rather for the benefit of the junior members of the profession, who are supposed to have enjoyed but few of the benefits of experience. The elder of the faculty may not be instructed by them. If they render no service to the interests of science, they may invite, if they do not impart, information.

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**Art. VI. Case of Aneurism of the right Subclavian Artery in which a ligature was applied to the Arteria Innominata.**

By Richard Wilmot Hall, M.D. Professor of Obstetrics and the Diseases of Women and Children in the University of Maryland.

Professor Geddings: W. Lexington street, Baltimore, Aug. 30, 1833.

In accordance with your request I submit the following case of aneurism of the right subclavian artery.

*September 1st, 1830.* A practitioner of this city requested me to visit with him, and take under my surgical care, Lot Jones, a labourer, age 52, supposed to have aneurism of the right subclavian artery. He was of moderate height, say five feet eight inches, of brown complexion, and of athletic appearance, though now somewhat reduced by pain, &c. He had enjoyed good general health until within a period of six or seven months past, when a pulsating tumor appeared on the right side, above the clavicle, and between the margins of the sterno-mastoid and trapezius muscles. This caused much pain of the surrounding parts, and gradual diminution and almost extinction of power, with edema of the arm. On his back and shoulders were eleven
distinct superficial herpetic ulcerations, some of them presenting a diameter of two inches or more. These, I learned from his family, had existed in a greater or less degree for the last seven years; sometimes nearly disappearing, and again becoming more diffused and irritable. The tumor above the clavicle had all the character and marks of aneurism of the subclavian; it now resembled the flattened half of a large orange. No aneurismal pulsation was imparted to the finger when pressed under the median margin of the sterno-mastoid, in the course of the clavicle towards the shoulder, shewing that its progress towards the median line was limited. The actions of respiration and of deglutition were sometimes painful, but less embarrassed than might have been inferred; pulse frequent and full, both in the diseased and in opposite arm. The tongue gave evidence of fever.

Having examined the tumor, he requested my opinion of its character and tendency, which was frankly given with the probable consequences of the only operation that could offer him a chance for relief. He promptly assented to the advice and recommendation of the practitioner who had previously visited him, and had now invited me to see him, to place himself under my care, and to have the operation performed. With these intentions, he agreed to come the next day to the Baltimore Infirmary, of which institution I officiated as one of the surgeons.

About noon of the 4th September, Lot Jones came to the Infirmary and solicited me to receive him into the house, with a view to any operation, however hazardous, which might afford him a chance for relief. In the course of this afternoon he was let blood, 3 xviij, took saline cathartic; light diet, &c. On 5th Sept. v.s. and cath. repeated. 6th, cathartic.

The case of this man had excited much interest among the professional gentlemen of this city, and many of them had examined the tumor. I proposed to lay open the parts above the arteria innominata with great care, and to examine its condition, with a view to ascertain if disease had so far taken possession of it as to render the application of the ligature upon it useless or improper. Should this prove to be the state of the artery, the ulterior steps of the operation were to be arrested, and the wound over the artery closed.

On the evening of 2d September, in conference with my colleague and friend, Professor N. R. Smith, he expressed his decided approbation of my intention to operate in this case, as thus
proposed.* My friend, Dr. Buckler, also, after due examination of the case, gave me a concurrent opinion on the 3d and 6th of September, and added, "that if left to itself, the aneurism must prove inevitably and speedily fatal."

**September 7.** A number of students of medicine and physicians attended at the infirmary, and my friend Dr. Thomas H. Wright, kindly consented to aid me in the operation. The patient was seated in a chair. The head slightly thrown back and the chin moderately raised; an incision was then made through the skin over the trachea, in the median line, extending from the inferior portion of the thyroid cartilage down to the superior part of the sternum, and from this carried at a right angle to the origin of the right sterno-mastoid. The angular flap was then dissected up. The superficial and deep fascia of the neck were then carefully divided down to the trachea. The handle of the knife was then used to separate the cellular tissue in the direction of the artery innominata, and to elevate the ribbon-like muscles of the thorax on the right side, which were left entire. Several diseased glands of considerable size were now observed—no vessels demanded ligatures thus far, and scarcely a drachm of blood was poured out. The index finger was thus, in a few seconds, introduced at once upon the artery innominata. The cellular tissue on its posterior aspect was easily separated, so as to allow the finger to pass behind and below it, while that on its anterior aspect evinced a firm and morbid adhesion to the contiguous parts. I remarked that the artery was certainly diseased and enlarged. The handle of the scalpel was now gently used to separate this adhesion. No cutting instrument was carried near the artery, and lest the artery might be so far diseased as to yield to this agent or to the blunt aneurismal needle, in detaching it at this point, the index finger was again introduced, and gentle efforts made to overcome this morbid adhesion. Thinking that I had succeeded in my intention, I with-

*Professor Smith in a foot note to his work on "Surgical Anatomy of the Arteries," has referred to this case. He was not present during the operation, although he attended carefully to the post mortem examination. He reminds me of his request while his work was in press, to be furnished with a history of the case. This could not be prepared in due time. After having taken a cast from the tumor of Lot Jones on the 6th September, he first expressed his doubts of the expediency of any operation, on the supposition that extensive disease existed in the arteries about the curve of the aorta. The probable existence of this condition of the parts having been before duly considered, the operation had been appointed to take place the following day.
drew my fingers, which was followed by a slight flow of florid blood that became immediately copious and uniform, without jet or hissing sound during its emission. The finger was introduced again into the wound to ascertain the source of the hemorrhage, and I was led to believe from the point of the greatest warmth and impetus of the current being about the bifurcation of the artery, that the carotid had yielded and had broken. When the arteria innominata was pressed to the sternum, the hemorrhage was stayed. The aneurismal needle of Weisse, with a flat ligature, was carried down closely on the tracheal aspect of the sternum; the artery to the eye and to the touch appeared to be commanded by the ligature which was now tied. During the application of the ligature the flow of blood was arrested, but when the artery subsided to its position, the flow again recurred. The patient now manifested signs of approaching syncope. He had lost about ⅙ of blood; a small piece of sponge was pressed down over the ligature, and a second and a third over this, to fill the cavity of the wound. A suture passed through the edges of the wound kept them securely in their position. The hemorrhage ceased. The patient was laid on his bed and soon revived. The wound was superficially dressed. The pulsations of the right subclavian and carotid were scarcely perceptible for two hours, and then gradually increased, and soon equalled the action of the same arteries on the left side. He now sat up, conversed, drank, and said he felt as well as before the operation; had his linen changed, and then slept one hour; eat a little soft fruit, and took nourishing drinks with facility. At 11 P.M. the pulse soft and full; sleeps soundly on his left side; no hemorrhage; breathing and deglutition but slightly impaired; articulates distinctly.

Wednesday, September 8, 9 A.M.—Quite revived and composed:—slept much during past night, pulse 88, more free in both wrists, sits on the side of his bed—took mild cathartic:—5 P.M. still better, pulse same; respiration and deglutition still less impeded.

Thursday morning, Sept. 9.—Has slept most part of the night, pulse 104—full in both wrists; at 6 P.M. pulse 106, with more tension, let blood from the arm ⅗.:—neutral draughts, &c.

Friday morning, Sept. 10.—Has slept better last night; pulse 108—took cathartic;—walking round his room (which is large) went several times to the eoloa in the court, distant 30 yards, in opposition to my advice—was permitted to recline on the grass in the court by the indulgence of his attendant. 5 P.M. pulse
softer 98; talks too much with his attendants; making arrangements for returning home in a few days.

**Saturday morning, Sept. 11.**—Has slept much as in the preceding night; pulse softer. 12 M. pulse 96, disposed to slumber; insists on walking round his room, at 4 P.M. sudden change—pulse 134, anxiety—increased difficulty of respiration, hot skin, pain about the sternum; a slight discharge of bloody serum from the wound; deglutition difficult, he grew worse and expired at half past 4 o’clock A.M. of Sunday morning, 12th September, one hundred and thirteen hours (nearly five days) after the operation.

**Sunday morning, Sept. 12.**—Post-mortem examination was made at 10 o’clock; present Drs. Buckler, McDowell, Smith, Jones and others; Dr. Jones was requested to make the examination. His observations are inserted.

_Baltimore, Sept. 15, 1830._

_Dear Sir,—_Agreeably to your request, I now send you an account of the dissection lately made at the Infirmary; the statement was drawn up immediately after leaving the house.

Examination of the body of Lot Jones, September 12, 1830, six hours after death. A longitudinal opening two or three inches in length existed in the lower part of the right side of the neck, a little to the tracheal side of the sterno-cleido-mastoid muscle; this opening contained several pieces of sponge, one piece about three inches in length was extracted from beneath the sternum, its upper extremity corresponding with the superior margin of that bone; the sponges were filled with dark-coloured, fetid matter; the surface of the wound was in a state of putrefaction. An incision was made through the integuments from the chin to the ensiform cartilage; at each end of this first incision another was made at right angles with it and on the side of the body; the large flap thus formed, was then raised and the whole of the right side of the neck exposed. The platysma was very strong; it was separated below and thrown upwards; the sterno-mastoid muscle was also removed out of the way by cutting up its sternal and clavicular attachments. The inferior belly of the omo-hyoid lay immediately upon the middle of the aneurismal sac. The sterno-hyoid and sterno-thyroid muscles were involved in the inflammatory adhesion of the wound and could not be made distinct. The external jugular vein contained a quantity of air. The sternum was now removed and the right clavicle sawn through in the middle. There was considerable thickening and inflammation of the cellular substance
which lies upon the pericardium. The pericardium was slightly thickened and adherent in some places to the heart; the aorta was enlarged at its arch, being at least one half larger than it is usually found; towards its root, it adhered very closely to the investing pericardium, particularly on the right side. The heart seemed to be lower in the thorax than usual. The lungs which were of a healthy color, did not collapse when the tho-
rax was opened.

All the parts about the origins of the great vessels were uni-
ted together by close adhesions. The vena innominata could not be completely detached from the surrounding parts. A whitish cord was observed, extending upwards in a line parallel to and upon the right side of the trachea; this cord resembled the carotid artery, but was nearer the trachea, and was found to consist of a chain of small glands in a state of disease; a number of diseased lymphatic glands also existed in the fossa on the tra-
cheal side of the aneurismal sac. The sheath of the carotid and internal jugular was greatly thickened and adherent to both the vessels; the par vagum at the lower part of the neck was also surrounded by adhesions. The internal jugular was moderately distended, and appeared to be healthy. The aorta was opened near its root and the incision continued upwards into the arteria innominata and right carotid; in making this incision, the inno-
minata and the lower part of the carotid were found to be greatly softened and to be easily torn; this condition of the innomin-
ta and inferior portion of the carotid was the more striking when compared with that of the superior part of the carotid, which was of the ordinary strength and firmness. The ligature which was left in the wound, was found to pass through two holes in the coats of the arteria innominata; these openings, which were two or three lines in diameter and nearly resembled each other, were about six or eight lines apart, and were situated in the an-
terior or internal part of the vessel. They were about mid-
way between the root and the termination of the artery which was of its ordinary length. The internal coat of the aorta, arte-
ria innominata, right carotid and subclavian presented inequali-
ties and irregularities of surface. The innominata, the lower part of the carotid and the root of the subclavian were perhaps, somewhat increased in size; the coats of the subclavian as it ap-
proached the aneurismal sac became extremely thin, and the caliber of the artery, at this place was considerably diminished; the tracheal end of the tumour rested upon this part of the artery. On opening the aneurismal sac at the anterior part, the coats
were found to be tolerably smooth; a large and dense coagulum occupied the bottom; on opening it at the posterior part, a quantity of dark-coloured fluid blood was discharged, and it appeared as if there were two cavities, until some force was used to expel the coagulum which had thus divided it into two compartments. The heart appeared to be nearly of its ordinary size, and was loaded with fat; nothing remarkable was observed in its cavities, except some slight thickening of the valves at the root of the aorta. A large and strong fibrinous coagulum was drawn out of the aorta, which must have extended nearly the whole length of that vessel.

Respectfully,

Caleb Jones.

Richard W. Hall, M. D.

Allow me to invite attention to a few points in Dr. Jones' letter. "When the aorta was cut open and the incision continued up, the artery innominata and lower part of the carotid were found greatly softened and were easily torn:" again the internal coat of the aorta, of the artery innominata, right carotid and subclavian presented inequalities and irregularities of surface and were increased in size." The inequalities and irregularities here referred to, were granular atheromatæ or whitish tubercular bodies elevating themselves on the internal coat of these arteries. My friend, Professor Smith, also remarks that "the aorta was rigid and granulated on the outside;"* the coats of these arteries in their increase of thickness and size—in their want of elasticity and tenacity, afforded every evidence of chronic inflammation and degeneration as described and noted by Monr. Gendrin and others. This condition of these organs doubtless led to the occurrence of spontaneous aneurism in the right subclavian artery. I may also aver that the arteria innominata at the period of the operation, to the touch and in its power to resist rupture, appeared nearly to resemble the thin peel or rind of an orange, and that it gave way to an effort to separate it from its adhesions, by which a healthy artery could not have sustained the least injury.

Allow me, sir, in conclusion to quote a sentence from a publication of a friend and colleague which ranks high in this country and in Europe: "As spontaneous aneurism invariably arises from organic degeneration of the arterial tunics, it is obvious that it must often be attended with a morbid condition of nearly the

*Professor N. R. Smith; Surgical Anatomy of the Arteries, loc. cit.
whole arterial system. When this is extreme, as we ascertain by the irregularity of the circulation, by the obvious rigidity of the arteries, and by the feebleness with which the organic functions are performed, an operation does not promise success, as the artery to which the ligature is to be applied will be found incapable of the vital process necessary to prevent the occurrence of hemorrhage on the separation of the ligature. Nevertheless, as when the artery is much diseased, the operation has sometimes succeeded, and as it is impossible to ascertain with precision when it may have lost its recuperative power, we ought always to operate, other circumstances being favorable, in case the tumor should appear to be increasing rapidly and threatening a speedily fatal result.”

I am respectfully, your friend and colleague,

RICHARD WILMOT HALL.

* Professor N. R. Smith; Surgical Anatomy of the Arteries, page 26.

Some writer has remarked, that fever is rather the shadow of a disease than a disease itself. Few, we believe, at the present day, will doubt the correctness of this assertion, particularly when it is considered how many of the conflicting opinions that have ever divided doctrinists, may be traced to the simple fact, that this shadow has very generally been taken for the substance, while the substance itself has been entirely overlooked, or but lightly appreciated. To ascribe an essentiality to fever, making it a disease of the whole system, and yet denying it a locality in any of the organs that make up that system; to give it a local habitation in parts inscrutable by the senses; to make it to reside in itself, has been the occupation of the most of those whom the profession has been accustomed to look up to for ages. Even at the present day, with all our boasted improvements in philosophising, with all the accumulation of materials brought down to us by time, and acquired by recent research, with all our self-gratulation at what we have done, and what we intend to perform; with all this, we are, in truth, unable to boast of an exemption from the errors of those who have preceded us.—From Hippocrates to Boerhaave, from Boerhaave to Brown, and from him to the promulgators of the latest doctrines, the physician has been amused by concoction and lentinor, and spasm variously modified, and susceptibility, and irritability, and a host of other similar entities called proximate causes. But we would, by no means, be understood to say, that all these researches have been useless. It would be strange, indeed, if among the materials brought together in the fabrication of these edifices, there were not many that must pass the ordeal of truth, and
prove indestructible through all time. But whatever admiration may be excited by a contemplation of these stately piles, (for some of them have been truly such,) yet it would be well to aim higher than to be numbered among those "secondary intellects," who will not see faults because they have enlisted in the ranks of the builder, and believe him to be faultless. We believe no such thing,—either in regard to those whose labors have become incrusted by age, or those whose works at the present day are being hewn and piled into form. A "new" and an "old school" have claims upon our reverence, only as far as they may command it, by the truth of their principles; but if we are ever to attain a just perception of this truth, it must be by a rational dependence upon one's own resources; by faithful observation, impartial analysis, and correct deduction. To submit our judgment to the opinions of others, is an error that must ever prove an obstacle to the progress of knowledge. So it is, indeed, that the adherence to schools has made men obstinate in the belief their fathers taught them, while on the other hand, a love of novelty has made them leap at once into all their contemporaries have promulgated, and thus have they been prevented from reconciling what is true in each, and making that real improvement which the age demands of them. It is well to hesitate, rather than to be led blindly even by those whom we may venerate,—it is well also, to be able to look upon the light without being dazzled by the glare, and to proceed boldly and deliberately in the path made clear to us.

If any one thing has obstructed this rational progress of improvement, it is perhaps the accumulation of terms and their endowment as intelligences; a verbal complexity that has rendered the most simple often obscure, and made us doubt of even that which should be most familiar to us. The ingenuous inquirer has become perplexed, the student wearied, and the indolent provided with ready arguments of objection, through pedantry on one hand, and doctrinal mysticism on the other. Among others, the term irritation has led to much of this misunderstanding. It has been a favorite from the time of Glisson, Haller, and Girtanner,—by one it has been made a mere quality, and again by another a separate intelligence;—and it has been endowed with almost every known and even some unknown properties; it has been modified, and contorted into all possible forms, until every thing like a definite notion of what is meant by its use has been lost. As a distinctive condition of organism, it has become involved in a mass of confusion, which almost
every writer has rendered more confused, until it has been made perfectly useless for scientific purposes. Doubtlessly, to some minds, irritation conveys a definite notion; it may be that to one it is a condition confined to lesions of simple nutrition; or, to another, a morbid change not obvious to the senses, except by signs or symptoms manifest in the living body. But the notion is just as definite in the minds of others, that all gastro-intestinal morbid productions are to be referred to irritation, and that this, in all cases, is a "sur-excitation of vitality;" and so individually there may be a variety of such definite notions, but to the mass of the profession, it will not be asserted, that there is any word in use in modern medicine, that has less general distinctness or universality of meaning, or that has been so greatly the means of retarding the improvement of our science. And if the doctrine of fevers being symptomatic of local diseases, has not met with that ready adoption in this country which might have been expected, it must in a great measure be owing to Broussais himself, whose use of this term is every thing but lucid, consistent, or satisfactory. We say a more hearty reception of the doctrine might have been expected, because it is no new thing to the American physician. The symptomatic nature of fever, and the gastric pathology were taught at least a quarter of a century since, in this country, by the able and learned Edward Miller, whose independent and original views should be more familiar to the profession than we regret to say, they are. He too had his irritation in accounting for the phenomena of fever—an "irritation of the sanguiferous system;" and if such an expression should now sound strangely to the ear of some, we are inclined to think that it is not less definite than any more recent form of applying the term. For irritation, after all, cannot be considered as any thing but a quality,—an abstraction, the correlative, according to some, of sensibility and contractility, which are equally qualities or abstractions, and may be allowed to belong to the sanguiferous as well as to the nervous or any other system.

Terms, however, must be used; but it would always be well to confine ourselves to those most familiar, and which are connected with the least doubt as to their true intent; those most common, and which have always had the greatest uniformity of meaning. For ourselves, we prefer the term excitability, intending to convey by its use, nothing like a separable entity or intelligence, but simply the capability of exhibiting certain phenomena peculiar to living bodies.
The aggregate of certain morbid phenomena, we call fever: but this implies nothing more than a shadow, a conventional expression for a series of results, varying sometimes in their relation to each other, but as a whole evidencing a peculiar condition not consistent with healthy organism*—a manifestation of morbid changes either in the functions of organs alone, or in the tissues of the organs themselves, or in both simultaneously.

Now, simplifying the arrangement of these manifestations, they would seem very naturally to classify themselves into, first, fevers of simple excitement, and second, fevers of complex excitement.

In recognizing these two conditions, we are to be governed by the signs manifesting the morbid changes in each. In seeking for these signs, we are to distinguish between pathology and morbid anatomy. The first is to be developed by the living but diseased body—the second, of course, is the study of the dead body. The distinction we think important. If it had been more generally kept in view, there would have been at least one class of objections that never could have been raised against the doctrine of the symptomatic nature of fever. The effects of simple excitement would not have been sought for in the dead body by the opposers of the doctrine, and the circumstance of a morbid change not being found, or only in a degree insufficient to account for death, could not have been urged with any force against the locality of the disease. The evidences of simple excitement are then to be sought in the living body, where mere functional derangements, isolated from all obvious structural lesions, are made sufficiently evident in most cases. Morbid anatomy has cognizance of structural changes, which being known from autopsy in the dead body, their relation is traced to the signs or symptoms manifested in the living body. In fevers of simple excitement, therefore, we are restricted to signs in the living subject, the causes of which are, for the most part, hidden from ocular demonstration; while in those of complex excitement, we have not only the signs, but a tangible demonstration of the causes, that is, as far as we can physiologically seek for causation.

Fevers being considered as symptomatic of local morbid changes,

*Organism has, by some, been used only in relation to the tissues or molecular arrangement of an organized body; hence, it might be supposed, that we had reference solely to lesion of structure. By organism, we mean the whole of the forces or powers which govern an organized being, or, strictly speaking, the living organized being itself.
either of function or of structure, will be manifested in degree according to the actual condition of the part which is the seat of the disease. It is probable, indeed, it is a logical deduction to assert that even in the slightest deviation from the zero of healthy organism, there must be a disturbance of the molecular arrangement of structure. But, as this is not appreciable by our senses, we call it functional derangement, as distinct from structural lesions. These two conditions, and another of which we have not yet said any thing, (precursors, or latent antecedents,) must then be only degrees of the same disease, and fevers of complex excitement be considered as an extended grade, of the series of changes taking place in the development of structural lesion, from the simplest derangement to the gravest destruction of organized molecular arrangement. It will be perceived, that fever itself being but a sign of a local disease, we must be governed in all cases by other and outward signs of which it is the aggregate—but not always in relation to any internal demonstrable signs, for in the chain of series, there are many of the initial links that can never be detected in the dead subject. If then it be demanded, to prove an identity between fevers and local diseases,—while we acknowledge that in the primary links we are unable palpably to give this proof, from the very imperfect nature of our senses, which are unequal to the detection of all actual changes,—we must resort to other evidence, and make our deductions from known pathological signs, as exhibited in the course of a fever or in an acknowledged local disease.

But though it be not possible always to detect these signs of simple functional derangement in the dead body, it must be remembered on the other hand, that there are certain conditions manifested, which would seem to indicate disease, when in reality no structural change had existed previous to death. Idiopathists have been aware of this, and while urging it as one of their arguments against the symptomatic nature of fever, have indeed attributed these appearances to their true cause. But as in fevers of simple excitement, we claim in evidence nothing more than the pathological signs manifested during life, we do not make ourselves liable to any charge of inconsistency on this point. These appearances are principally discoverable in the mucous membrane of the gastro-intestinal tube, and are referable to various circumstances occurring just previous to, at the moment of, or after death. The difficulty here referred to, however, only holds, it will be remembered, in respect to the pathology of simple excitement, while it may be observed at the same time,
that these cadaveric appearances are simple in their nature, being confined to mere coloration and sometimes perhaps to thickness of the membrane, both depending on the condition of the blood-vessels or rather to simple stasis of fluids. While all distinguishing marks are thus lost in most cases between those changes which occur before, and after or at the time of death, still it cannot be denied that some must be considered as evidence of previous disease: these however, are few and extremely uncertain. But though so much doubt is attached to the post-mortem developments in fevers of simple excitement; still this very difficulty is one of the arguments for our classification, seeing that it obliges us to draw our conclusions from the pathological signs in the living subject alone, as indicative of certain internal conditions not demonstrable in the dead body; but deduced from changes occurring in the higher grades or fevers of complex excitement, and which are known to exist. This difference between the two classes, however, is owing to nothing more, as we have said, than a series of derangements commencing with the simplest functional form, passing through degrees of morbid developments, and terminating at length in various complex structural changes. Post-mortem examinations, in the first links in this series, afford us no rational conclusion, because, as we have seen, the changes which actually occur are inappreciable in the dead body; and even if this were not the case, the mere cadaveric phenomena are such as completely to destroy every thing like distinction between the two conditions. But, as the graver forms of fever are only degrees in the scale of molecular derangement, heightened in development and manifested in the dead body by certain defects of structural soundness of the tissues,—so, reversedly, we deduce from these lesions of tissue, the conditions which exist in the commencing links of the series. This is the only mode we have of framing our pathological indications in simple excitement, where we do not, and, indeed, from circumstances, cannot expect to find any other than external signs of the internal condition of the seat of disease.

With these preliminary remarks on the subject before us, we proceed to the notice of the "Medical Opinions" of Dr. Armstrong, hoping that we may, in some measure, be able to reconcile many of his views which have been adopted in this country, with what we consider to be the true doctrine of the nature of fever.

Dr. Armstrong divided Fever into two classes, common and specific, as it proceeded from common or specific causes.—These last are epidemic conditions of the atmosphere, speci-
fic contagion, and poisons: all other and ordinary morbific causes are included in the first, and are arranged under three heads—depressants, stimulants, and irritants;—these, when they produce acute affections, give rise to congestive, simple, and inflammatory fevers. The difference between common and specific fever is, that, "in the first, there is nothing fixed as to the locality of the ultimate pathological effects; while in the second, there are some of these which are always uniform in their seat."

If inflammatory fever should result in any number of persons, from the action of common causes, there would be nothing determinate but the inflammation itself, which would affect the part where a predisposition for morbid change already existed in each. If specific causes should act, then all in some respects would be similarly affected. In scarlet fever, for instance, there would be in all a rash on the skin and sore throat. But here, too, the individual would suffer from predisposition; for besides the specific effects, there might be inflammation of other parts. But whether fever arises from common or specific causes, it appears under the three forms already mentioned.

"The conditions, therefore, of venous congestion, of simple excitement, and of inflammation, are all comprised in the term fever, taken in its most comprehensive sense. In its onset the exciting cause has produced congestion or excitement. If the congestion be not overwhelming, reaction sooner or later follows; and the case then, as when excitement is primarily induced, is one of simple or inflammatory fever, depending upon the absence or presence of inflammation. Inflammation, therefore, is the ultimate effect. If the cause be a common one, the case is one of common inflammation in some organs or structures that were predisposed; if peculiar, there are then, invariably, specific effects in determinate parts, though the excitement, independent of the nature of the cause, may operate upon existing predispositions, and kindle up inflammation according to their seat or degree. In common fever, therefore, in its fullest development, there is inflammation somewhere, and the symptoms will vary indefinitely according to its seat and complications; but in the complete development of specific fever there is always a determinate inflammation in particular parts, limited by the nature of the exciting cause; and though inflammation may appear in other structures which lie beyond the influence of the peculiar cause, this is not fixed as to its locality, but has a wide range over all parts of the body, because it is dependent upon the influence of excitement acting on topical defects, which vary in different persons." p. 129.

Looking at fever as an abstraction, simply implying the manifestation of an aggregate of morbid changes, we do not think that we should go farther than the evidences of those changes manifested in the body. Where the essential part of these is the same, we are not to look at external causes, for it is perfectly immaterial in the philosophy or cure of disease, whether the
functional or structural lesions be the result of a wound or of a poison. In scarlatina we do not attempt to cure the eruption, but to relieve the system of the morbid changes attendant upon that eruption. With these views, we object to Dr. Armstrong's classification; besides, even by his own shewing, the conditions to which the attention of the physician is specially attracted, are for all purposes in reality the same. The congestive, the simple, and the inflammatory fever, are equally the result of common and specific causes. The pathology in each case would be essentially the same, manifesting itself in each case also in a higher or lower degree, according to circumstances; giving the same signs, and indicating the same principle of treatment.—We object to the classification, because it carries with it no evidence of the condition of things; no reference to the pathology of the abnormal state. It is not an expression of any thing that would lead to an appreciable knowledge in the use of therapeutic agents, and therefore based on no fixed or usefully available principle.

As the classification is intrinsically wrong, so do we think is the arrangement of the exciting causes. The division into depressants, stimulants, and irritants, would be scarcely worth remarking on, only as they seem to Dr. Armstrong to have an intimate relation to the pathology of fever. But, as we have just said, in this respect they are not of the slightest importance, for fever, as it ought to be considered, is independent of any of these causes which are said to have produced it. The first class, says the author, gives rise to one kind of fever, viz. that of congestion, with three stages, oppression, excitement and collapse; the second causes another variety, with two stages only, excitement and collapse; and the third ultimately acts either as the first or the second. Now, this ultimate action is precisely that which destroys every thing like value in a pathological point of view in this, or we may say in any division of causes, when used for the purpose they are here intended to perform. If there were no other reasons, the want of certainty as to which of the three classes was to be attributed this ultimate action, must render them valueless. The doctrine of causes holds its proper importance in the study of disease; but causes have very little to do with the nature of disease itself, when once formed. No matter how inflammation in any organ is produced, whether by atmospheric vicissitudes, by contagion, by mineral poisons, or by wounds, it is still in essence the same disease, differing in
degree, but presenting in its nature but one form for investigation.

With regard to the opinion that in common fever, there is nothing fixed as to the locality of the ultimate pathological effects, we shall presently endeavor to show how our difference with Dr. Armstrong on this point, may be consistently supported by the doctrine of local defects which he so justly holds to be of the first importance in discussing the nature of fever. Other parts of the author’s doctrine in regard to specific fever and the difference between this and his first class, we shall notice as we proceed in our remarks.

In the quotation we have given, Dr. Armstrong, has sketched in a few words, the conditions manifested in common and specific fevers; in the full development of each of which, we find inflammation as an ultimate effect governed in its location by predisposition. Upon this point he is careful to insist. It is here that we find the author making a close approach to a full belief in the symptomatic nature of fever as contended for at the present day. Of these opinions, we do think he would have become an able supporter, had he lived and continued his investigations with the bold and independent reliance upon his own resources which marked his whole career. Many of his views we conceive to be erroneous, but there are important ones which we think can be reconciled with what we believe to be the true nature of fever. This may be seen in what is said in the detailed remarks on common fever, which forms the subject of the second chapter.

Dr. Armstrong’s description of his first subdivision of common fever, illustrates well our Fever of Simple Excitement. The pathological signs we think cannot be mistaken in relation to the local seat of derangement. The morbid changes are expressed in a word or two, but show how justly the author discriminated between the succession of phenomena as they occur from the lowest to the highest degree of ordinary development.

"In Common Simple fever there is a temporary excitement of the whole system, without any marked disturbance of particular parts. The circulation and respiration are more hurried than natural; the animal temperature is transiently raised above its natural standard, with a proportionate increase of the sensibility and irritability; there is more or less disturbance in particular functions, indicated by thirst, a morbid state of the secretions and excretions, and a loss of appetite, with a variable degree of restlessness, lassitude, and languor.

"In this mild form of fever the different organs are excited; the blood circulates more rapidly through all parts of the body, attended perhaps by some
Armstrong’s Medical Opinions.

obscure partial determinations to particular parts; but not to the extent or in the mode which constitutes inflammation. The type of the fever, however, may change at any moment; and this, even in an apparently sound subject, may be dreaded in those cases where the excitation is high or protracted: for perhaps no organization is free from latent defects, though they may be difficult to detect in strong and healthy subjects; but in weak ones the change is always to be apprehended, and, consequently, no case of simple fever is to be judged prospectively from its present state.” p. 125.

“This form of fever may be preceded by the stage of congestion, or may arise directly from the immediate influence of stimulating or irritating causes. It may also precede or follow inflammation: and though the indications for its removal are in all cases the same, because they are derived from its own inherent condition, which is that of excitation, unaccompanied by inflammation, yet some attention to the stage and peculiarities of each case is necessary, as they will naturally suggest some modifications of treatment. This is observable when an irritating cause is continuing to act, the detection and removal of which is the first step in the treatment;—as in the case of fever arising in infants from the irritation of dentition, and in those cases where too full a diet, or the presence of indigestible food, or of acidity in the stomach, requires our attention to the cause as well as to the effect it has produced.

“In those cases where a simple fever succeeds to the inflammatory, there is, especially with young practitioners, a necessity for discrimination in distinguishing the one condition from the other; for errors are often committed in supposing that the continuance of excitement necessarily implies that of inflammation, and therefore justifies a persevering in the use of active remedies. If the inflammation has been subdued, the excitement which remains will generally subside under the influence of the usual negative means of treatment. It is partly the effect of the original disturbing cause, and of the means which have been employed to control its effects; and what is most important is to distinguish it from the inflammatory condition which preceded it. If this distinction be clearly made, the mind of the practitioner is satisfied as to the nature of the existing state, and he treats it with reference to its degree, to the condition of the patient, and to the probabilities of the occurrence of the inflammation.” p. 126.

We have italicised portions of the above extracts, in order to press upon the attention the distinction between the degrees of changes exhibited in the series of morbid conditions;—and it will be perceived how well Dr. Armstrong distinguished between simple excitement,—not recognizable in the dead body by any trace of previous disease,—and that higher degree of excitement or inflammation in which such condition may be detected. Here we have simple functional derangement, on one hand, distinct yet forming a link in the chain of morbid developments, which in a higher degree, on the other hand, gives us the structural lesion of inflammation. “No case of simple fever,” says Dr. Armstrong, very justly, “is to be judged prospectively from its present state;” nor retrospectively either, it should be remembered, when in the rise and fall of excitement, we have the simplest
form succeeding as well as preceding the gravest lesion where the case is conducted to convalescence. This, too, our author has well remarked upon above.

The obscure determinations to particular parts, noticed by Dr. Armstrong, is that condition which makes, in our opinion, even this simplest form of fever one of a symptomatic nature. The author's doubt, whether they are always present, is completely nullified by his next remark, that no organization perhaps is free from latent defects—for it is those very defects which are never absent that make the attracting points for determinations of excitement. The healthful balance of organism is lost, super-excitement occurs in some organ at the expense of others, and we have developed the signs of this pathological condition; the aggregate of phenomena which we call fever. If this be true, it will perhaps be asked which are the parts most liable to these latent defects? To come at once at this question, we shall pass, for the present, what is said of fever of congestion, and notice at large the author's remarks on predisposition which will enable us very conveniently to frame an answer on this important point.

The local defects or individual predispositions just referred to, produce, in the opinion of Dr. Armstrong, those determinations in which consist the peculiarities of inflammatory fever. The locality of inflammation is varied in its seat by the "varied liability to disorder in the organs and structures of the person attacked." These defects are natural or acquired. In the great susceptibilities of infancy, we see a predisposition to morbid changes exhibited in the brain and the skin and mucous membrane. In age, there is the same susceptibility for morbid development, but from different causes.—In the first, says the author; it arises from the delicacy and irritability of the nervous, and the proportionably prompt contractility of the muscular system;—in the second, from the proneness to congestions from the increasing languor of all the functions. "Excitement indirectly arises in both extremes of life," manifesting itself in the child in the form of inflammation of the structures just mentioned—and in age, determined by those local defects which may be acquired from the accidents and habits of life. In manhood there is matured strength—an inherent power, which, he observes, successfully resists the effects of depressing causes, and inflammation is locally determined, in a state of temporary debility, by hereditary defects or those acquired from habits or previous disorders and diseases. There is a natural predisposition also
connected with sex. This is perceptible in the female who par-
takes something of the character of childhood even in her adult
age, "and the natural vicissitudes of ease and suffering to
which she is exposed, from the alternate state of repose and
action of the uterine system, predispose her to disorders pecu-
liarly her own."

Another natural predisposition is that termed hereditary,—a
condition dependent on some intricate peculiarity of confor-
ation not perceptible to the senses,—congenital and affecting the
different members of the same family with a disposition for the
same disease.

Of these predispositions it will be perceived that with the ex-
ception in some degree of the first and last, they are all depend-
ent upon external causes for any active agency in determining
the seats of disease. "Accidents and habits of life," "habits,
or previous disorders and diseases," &c. as productive of local
defects, cannot be considered as any thing different from the
special causes of acquired predisposition, afterwards enume-
rated. The natural predispositions, indeed, are nothing more
than the peculiar condition antecedent to the action of external
agents, and this we conceive to be simply the natural condition
of us all.

The special causes mentioned, are, the artificial habits of
society; the moral and physical shocks of life; the heat of summer
and of hot rooms; sedentary occupations; mental anxiety; hard
study; want of sleep, &c. Irritants disturbing the digestive
organs; certain medicines and fermented liquors; and indulgence
of a morbid mental sensibility. Debility, either habitual or that
of convalescence from disease; and plethora, either general, as in
vigorous habits, or local, as in less robust ones, are also numbered
among the acquired predispositions.

From a review of this enumeration, it will be seen that the
human system is constantly submitted to the influence of agents
which in one form or other are continually in operation, and in
the end are productive of latent defects, predisposing to deter-
minations of diseased action. All are busy in destroying the
equilibrium of health. The delicately balanced organism of
infancy is in a continual state of oscillation; manhood offers a
firm resistance in support of its equipoise; while the scale in
age sinks readily from inefficiency in resistance, and not like
that in infancy from delicacy of structure. When, however,
the balance is lost, we have in all essentially the same irregu-
narity to counteract, the same ultimate condition to repair;
Armstrong's Medical Opinions.

modified indeed by peculiarities of structure and requiring various means for reinstatement, but, governed in this result by the same invariable principles.

Differing, as might have been expected, from those who insist on one organic point for the development of fever, still in many things Dr. Armstrong had more correct notions on this subject than most of his countrymen. In the instance immediately before us we are only sorry that he restricted these opinions to what he terms inflammation; but we will not find much fault with him here, for in all his forms of fever this condition may, indeed in the larger portion of fevers we think that he concedes that it does, take place, and is always determined in its seat by the local defect or predisposition already existing. The author was not always correct we conceive, in judging of the proper relation of antecedence and sequence, for instance, in making local inflammation a secondary effect instead of considering it as nothing more than a higher development of a local change existing from the first morbid manifestation, or what is termed simple general excitement. Still there is sufficient in his writings to let us know that he was taking the true method for successfully lifting the mantle with which truth has been so long veiled; and this, when we consider his national relation, is no trifling evidence of independent exertion. The favorable opinion we have formed of Dr. Armstrong's writings we think will be justified, when his views of fever are carefully analyzed, for if these be reconcilable with what we say of local defect or predisposition, it will be seen how very naturally the deducion follows in favor of the local origin of fever. By carrying this deduction still farther, as we shall briefly do, we do think that our author would not have differed much from us in our conclusions in regard even to the organ or portion of organ in which such origin is specially located. For grant us but the existence of local defects, and it really does not seem so very difficult to discover where we shall be directed to look for them. Before we proceed in this inquiry, however, let us take the following extract as the author's conclusions in relation to predisposition and inflammation:

"These, and other various circumstances which equally favor the operation of the common exciting causes of fever, predispose particular parts of the body to that derangement of structure and of function which is implied in the term inflammation; and wherever the inflammation may be excited, or however diversified its symptoms or effects may be in different cases, still there is in the abstract but one pathological condition to be attended to, though this requires
very important modifications of treatment, according to the different circumstances attending it.

The detection of this condition is of course the first requisite in the progress of inquiry; and having just conceptions of all that is known of the nature of inflammation, its different stages and degrees, the means by which it is to be controlled in its various states, localities and complications, we are in possession not only of the nature but the principle of treatment of all the varieties of this very extensive class of diseases.

These desiderata however are to be acquired only by habits of accurate observation and very extensive experience; for they comprise a wide range of facts embracing the produce of the larger portion of the field of medical inquiry. We are arrested in the very onset with the difficulty of comprehending what precise changes are implied in the morbid state which we term inflammation; and though its immediate effects are more apparent, its remote ones, or that extensive and complicated influence which it has upon the general system, is a subject in itself often intricate and obscure.

Inflammation, abstractedly considered, is said to be indicated by the symptoms of heat, redness, pain and swelling; but though these are apparent in external examples of it, we do not always derive assistance from them in the detection of internal inflammation; for they are all in some cases absent, at least to our perceptions, and hence the necessity of our discovering other indications of its existence. How it is originally induced we know not. We can only observe that its seat appears to be in the capillary system, and that vessels which carry colorless fluid in health, convey red blood in inflammation. Their capacity not only is increased, but that of the large vessels which go to or depart from an inflamed part: probably from the combined effect of the increased heat which is developed there, and the turgescence arising from some impediment to the freedom of the circulation." p. 141.

The difficulty here expressed in regard to the acquisition of a just knowledge of the nature of inflammation, is what all must experience. The subject is indeed one that must ever have much of intricacy and obscurity connected with it. Increased, and diminished, and mixed action have always been knotty subjects of discussion, which, however, we shall not meddle with here. In the local developments of this higher grade of excitement, Dr. Armstrong is sufficiently explicit, limiting it by "derangement of structure" to our fevers of complex excitement. This, as a sequence upon simple excitement, is well enough—on the relation between the two, there is need of some modification. The following is very correct pathology:

"It matters not where the original seat of the disturbance may be; for, if external, as in the case of accidents or operations, first general excitement, and subsequently inflammation of some internal organs, on the doctrine of predisposition, may follow." p. 145.

The above follows some remarks upon the immediate and remote effects of inflammation. Although the pathology is correct, we are not certain whether the reasons assigned for the relation may be so considered. The general excitement here
spoken of, appears to be that indefinite something—a general disturbance or implication by sympathy of the whole organism. But, if there be a local defect already existing, sufficient to become the attracting point for the subsequent inflammation of some internal organ,—that defect we conceive, cannot be considered as any other than the primary seat of what is termed, general excitement;—that is, primary in the constitutional manifestations. The wound of course, must be attended by its own local changes, such as immediately follow upon the accident. The above remark of the author, however, is well worth noticing. For as it is true of the final results of external accidents—how much more so must it be, of the results of those morbidic agents, whose subtile action is principally exercised upon the great internal surfaces.

In all we have said, we have been particular in keeping in view those latent defects or local predispositions which are of so much importance, considered as the determining points of excitement in whatever degree manifested. However, the aggregate of phenomena may be made obvious to us, whether by a few simple signs, as in mere functional alterations, or by a more complicated mass, as in structural lesions, still these defects must be viewed as the points d'appui, upon which our pathological investigations must rest. If these defects are common to all organs, and the phenomena of fever are as likely to be developed from a change in one as in another, then M. Broussais cannot be correct in confining his locality of fever to one portion of the internal cutaneous surface alone. The absoluteness of his doctrine can then no longer be insisted on. But while on one hand, we do not ask for this generality of local origin of fever; on the other, we dissent from any universality of law in regard to the gastro-enteritic organs. We contend for the symptomatic nature of fever, and of course must admit of a primary local disease; we even go farther than some who have modified this doctrine under various forms. If fevers, for the most part are gastro-enterites, they are not so absolutely but only incidentally, for they may be localized, we believe, in the whole digestive tube, or rather in the great internal mucous surface. In this, we only deny anything like a positive law which fixes upon the gastric portion of this surface as the universal local source of fever;—for we concede, that in ninety-nine cases in a hundred the stomach and intestines manifest this locality; and this, we think can be shown to be the result of circumstances alone, arising from the peculiar relation which these organs have to external
agents. As the whole internal mucous surface and its congener, the external cutaneous surface, exist under the same relation, but not in the same degree as respects the exposure or the agent or the susceptibility,—we may rationally conclude, that other portions of this extended organization may occasionally be the local source of fever; this is a possibility—though we confess it is rarely the case, but even this rarity of occurrence is sufficient to destroy any thing like a universality of law in regard to the gastro-enteritis of the exclusive doctrinists. Again, if by gastro-enteritis we are to understand that fully developed condition,—inflammation with its concomitant, obvious alteration of structure—then even what we concede as to locality—we deny as to condition. In fevers of simple excitements, we contemplate no other disease than that of mere functional derangement, and that in the form we have already expressed. A diseased condition not sufficiently elevated to be called by any term indicative of what is generally understood by inflammation, but competent even in its initial state, to produce lesions of secretion and of circulation; or it would be more correct to say, a condition compatible or concurrent with such lesions:—for fever is not something superadded to any local morbid change; it cannot be said, for instance, to be caused by gastro-enteritis, but is coetaneous with it, with the degree in fact of local defect. We are aware, that some may object to this view of the subject being carried back to the primary condition or stage of precursors. It may be said that this last is not a disease; it is a mere condition, a state, a disorder. But it is a something which is not health, and we know no intermediate state between disease and health. We confess that we cannot comprehend these hair-splittings. Wherever the index of excitement may rest, either above or below the zero of healthy organism, that must be a degree of disease. If that zero be other than an unit, or if by any mathematical calculation we can divide such unit, why then we will grant the possibility of the distinction.

The inquiry which next arises, is, where ought we to look for those local defects noticed by Dr. Armstrong? To such a question, the attention would at once be turned towards those organs most exposed to the injurious application of external agents, together with the relative susceptibility of those organs for morbid change.

When we consider for a moment the relation the great internal and external cutaneous system holds with the world without, and look upon its organism as under a continued state of excita-
tion from the operation of agents in immediate contact with it, we cannot hesitate in believing that it holds a most important connection with this part of our subject. Externally this system is submitted to a host of agents, which control its balance of healthy action; moisture, heat, electricity, atmospheric pressure, and other universal physical agents; accidents which impair its textural soundness, and habits which produce, as it were, an atmosphere peculiar to the individual. Internally, many of these, also, act directly, while others produce their effects mediately. Other agents, however, are introduced within the body, and affect certain portions of the internal, but hold no immediate relation to the external surface. Food and drinks, stimulant, lightly nutrient or merely diluent, healthful or impure, hot or cold, and medicines, with every imaginable mode of operation, may be enumerated among those agents which act upon the gastric portion of this system in a special manner. Modified in its functional action by these and many other causes, it should not excite wonder, if the stomach be considered in a peculiar relation to the development of disease. Its sympathies, too, with the intellectual world, are not to be forgotten. Do anger, joy, grief, or any of the passions, do or study or any of the higher mental operations affect us? No other part of the body so immediately shows an impairment of function as the stomach. Indeed not only here, but upon other portions of the internal cutaneous system, do we find these effects to follow upon mental emotion. Fear affects the larynx and pharynx, anger the gall ducts, joy and grief impair the appetite, and so on; but all mediately or immediately show their prominent effects upon the stomach. But as different portions are thus affected from these sympahtetic actions, so, likewise, upon different portions fall the results of various physical agents, but still the same ultimate relation holds though in various degrees in regard to this gastric surface. Scarlatina and rubeola, for instance, show a specific localization about the pharyngeal and laryngeal surfaces. We cannot doubt this specific action; why it is so, we cannot say; but, being so it gives to the general character of these diseases a peculiarity as inscrutable as the variable incubating term of contagion, or the contagious principle itself. The sneezing and throat affection in these two diseases, the nausea and vomiting in small pox, the peculiar intestinal derangement of those submitted to the action of lead, and many other specific local excitements, from various agents, all evidence the importance of the whole internal cutaneous system in
pathological investigation. This importance is materially height-
ened, when we reflect that in whatever manner the body may
be submitted to these morbific agents, whether by inoculation,
by absorption through the external surface, by respiring an in-
fected atmosphere, or, by deglutition, still we see one invariable
sequence, a primary affection of the mucous membrane proper.
But do the localities assumed depend upon a primary or second-
ary action, that is, does the high faucial excitement in scarlatina,
depend upon a primal action of the agent upon the part, or is it
a secondary effect following upon a previous action upon the
stomach? There might not seem to be any room for doubt on this
point, and it might be contended, that as we see a specific lo-
cality, so must this be the primary seat of disease. But we will
ask, in return, is there any more difficulty in accounting this lo-
cality a sequence upon a primary gastric derangement, than in
accounting for the locality at all? Contemplating the great as-
similative and associative powers of the stomach, its suscepti-
blities for morbid changes, and its predispositions for being acted
on by deleterious agents, there may not be much hazard, per-
haps, in answering in the negative. Still, however, it must be
considered as one of the vexed questions in the philosophy of
medical science. As connected with this argument, we give the
following from an Essay on the Sympathy of the Stomach, by Dr.
Edward Miller, who, with Rush, we can say, “was second to
no physician in the United States.” Those who are opposed to
the doctrine of the symptomatic nature of fever, because they
may suppose it not sufficiently tried by time, will do well to re-
collect that Dr. Miller promulgated the following opinion at
least thirty years since. Foreign writers, however, previously
even to this had devoted much attention to the subject.

“So far as hydrophobia from canine poison may be conceived to be of the
nature of malignant fever, the distinction between the consequences of the
primary and secondary modes of affecting the stomach by febrile poisons is
either weakened, or falls entirely to the ground. Dr. Darwin, whose theory
of fever will remain an everlasting monument of his penetration and the com-
prehensiveness of his views, relies on that distinction to explain the difference
between the mild and confluent small pox. Thus he supposes, ‘that in the
distinct small-pox the stomach is affected secondarily by sympathy with the
infected tonsils or inoculated arm; but that in the confluent small-pox the sto-
mach is affected primarily, as well as the tonsils, by contagious matter mixed
with the saliva and swallowed.’ With all possible deference for such autho-
ry, it seems to be difficult to admit this doctrine without many exceptions.
There can be no doubt that the inoculated small-pox sometimes proves to be
confluent, where no suspicion can exist of contagious matter being admitted
into the stomach, and primarily or immediately affecting that organ. Would
not Dr. Darwin have been nearer the truth if he had contended that the force of morbid action, which is sympathetically conveyed from the inoculated part to the stomach, and thence extended, by association, to other parts of the system, may, according to constitutional and other circumstances, be sufficiently diversified to produce all the varieties of the distinct and confluent disease?

"Whether miasmata and contagions, entering by the mouth, exert their action chiefly on the lungs or stomach, cannot yet be certainly decided. It is not improvable that differences in the ensuing disease may often arise from the various degrees of susceptibility in the several organs which give reception to the noxious matter. But whatever be the mode or place of entrance, the noxious matter, after a longer or shorter time, excites the system to a state of action which is morbid both in kind and degree. The stomach, the most moveable and associable of all the organs of the animal body, is the first to experience this excitement in itself—the most adapted, from its extraordinary powers of sympathy, to extend it to other viscera—and the most liable to sustain the burden of the disease, and to undergo the most fatal disorganization. To the heart and arteries, to the brain, to the lungs, to the skin, and occasionally to many other important parts of the system, is this morbid excitement communicated by means of the associative influence of the stomach.—Hence all the variety of congestion, inflammation, effusion, engorgement, gangrene, and other modes of derangement which dissection exhibits in the stomach, intestines, brain, lungs, and other viscera, of such as die of malignant fevers."—Miller's Life, &c. pp. 164-166.

Under the most complex circumstances then, we may consider the gastric portion of the internal cutaneous system, as the attracting point for the primary action of morbid agents. The applicability of this opinion in regard to fevers not contagious, is more apparent, for in these we have not any diversified localities to contend with. There is, however, another class of arguments that add to the conclusiveness of this opinion, and which we shall briefly notice.

The initial state of functional derangement is characterised by certain external signs, termed by Chomel and others, prodromus, a state said to be intermediate between health and disease; but as we do not acknowledge any such condition, we will not make use of the term intermediate. The prodrome is the period of morbid excitement, manifesting the incubating action of the principle of contagion, or infection, or other morbid agent or cause of disease; and if we are governed by pathological signs, we have here an index not only of disease, but of its primary seat. Here no time has elapsed for the gastric developments to become secondary, as is contended when similar signs are manifested in a more augmented form of disease. We are not able here to recognize any antecedent evidences of a derangement of health—nothing can be shown us as a preceding manifestation. And though many of these precursory phenomena may be considered so indeterminate as to leave us in doubt as to the
aggregate form of fever they will finally assume, yet individually they are so distinct that the true pathological condition cannot be greatly mistaken.

Let us for a moment look at the phenomena which mark this prodrome, as they are generally experienced by individuals who may have been submitted to the deleterious agency of any external cause. The physician is not ordinarily called to prescribe for this condition, but it must be familiar to every one who has observed the progressive course of indisposition in himself, or carefully examined into the history of disease. It is a state of good-for-nothingness, a term perhaps of rather awkward coinage, but truly illustrative of the condition of the patient. There is a loss of appetite, a peculiar loaded feeling or sinking at the stomach, a sense of relaxation or want of support about the abdomen, as if the intestines had fallen into the pelvis, a foul breath, a clammy tongue, an offensive taste, nausea, not precisely a tenderness, but an uneasy sensation upon pressure about the epigastrium, general torpor of the bowels, and dryness of the fauces, nasal membrane and of the eyes. The elasticity of the skin is impaired, it is harsh and shrivelled. Local and transient accumulations of heat occur with occasional creeping chilliness; and other signs evidencing a peculiar functional derangement of the great external and internal cutaneous system. We might enumerate many more of these phenomena, which directly or indirectly may be traced to one locality for their original seat. But this is not the place to enter into great details.

The great nervous centres evidence an oppressed susceptiblity in their general relations; there is a latent excitability, which with accumulated strength finally bursts forth into a well developed form of fever, or rather during the prodrome, the signs of excitement are not at all comparable with the degree of excitability. If it were otherwise, we should have positive debility, but it is evidently wrong to term this condition other than one of oppression, a derangement of organism, to restore the elasticity of which requires means entirely the reverse of what would be necessary in debility. The loss of equilibrium, does not imply a loss of excitability by any means, and by reviewing the precursory signs enumerated it will be seen, that, instead of any condition of this kind, some individual point has received the burden at the expense of others; this is manifested for instance, by the positive signs of morbid excitement in the gastric portion of the internal mucous surfaces, while those of the external cutaneous system are of a negative character. There is
a super-excitement of one organ which is augmenting every moment in proportion,—first, to the activity of the morbid agent, and secondly, to the increase of the determining force of the original local or predisposing defect. Now, it would be supposed very naturally from this, that the burdened organ would in the very inception of disease manifest a peculiarity of pathological signs not discoverable by other organs, and that these signs would be in essence, though not in degree, just as far removed from any thing like positive debility as when their accumulation shall have become manifested in well defined inflammation. This is in truth the case, and if we do not discover the seat or the character of these initial signs of disease, it must be from an error of observation. This is indeed, very likely to occur, either in our own indisposition or in that of a patient, especially in regard to cerebral derangements; for any morbid condition of the functions of the brain would be the first to force itself upon our notice by the very relation which this organ holds to sensations, and consequently, to the mental consciousness that makes us know the existence of any change from our ordinary state of health.

From the indications afforded by these precursory phenomena, we are to consider them as positive evidences of excitement, and also, as pathological signs of a morbid condition of the internal mucous surface, particularly of the gastric and enteritic portions. Not only may we infer this last from the signs enumerated, but also from others which we have omitted, and which, although affecting the muscular, cerebro-spinal and sanguiferous systems, may be accounted for, from their general negative character, as depending on that loss of balance and local super-excitement we have just spoken of. The stomach is in fact, the principal index of excitement;—here we find the most prominent signs of incipient disease,—and here,—when the oppression can be no longer borne,—spring into notice the phenomena which make up so great a proportion of the general aggregate of the pathology of fever. Even where the graver disease, as is sometimes the case, is located in the enteritic surface, the sympathetic relation of the stomach, is such as to give to this organ the power of exhibiting the most prominent signs of excitement. Hence it is, why, the results of post-mortem examination often prove so complete a disappointment to those who, not familiar with this fact, confine their attention to that part, which seemed during life most connected with the external signs, instead of looking upon the whole internal surface, at the
same time reflecting upon the sympathy of simple continuity of surface, and the relation which disease in a less susceptible portion has to the excitability of another portion. It is under such relation, we say, that the stomach presents its peculiarity of not only being in fact the greater seat of disease, but also, of often manifesting the principal evidences of more serious lesions in other portions of the alimentary tube. This last circumstance, while it unfortunately offers an obstacle to absolute certainty in all our external or pathological signs, affords additional evidence, if any were needed, that the gastric portion of the internal cutaneous system is the great accumulative centre of excitability.

What little space is left us we will occupy with a very brief notice of Dr. Armstrong's second subdivision of common fever. It will be recollected that he has received much credit for his investigation of what is called the congestive fever; that is, "fever consisting exclusively of venous congestion." But we object to the consideration of this condition of the circulatory system as a separate form, as any other than a contingent circumstance, one of the variety of phenomena that may or may not be present in the general aggregate of reactive signs. The congestion in the form contended for by the author, is either an absolute fever, or it is only a simple fraction of such condition. If it be a fever, then we should expect to find some evidences of excitement—some antecedent or subsequent morbid condition, having a relation to a general or local excitation of the vital forces. That congestion is present in many forms of fever, no one will deny; but so is the contrary condition, for where there is local accumulation in one organ only, or in the great venous system at large, there is a diminution in other organs or in the arterial system. If the indication is to lessen the accumulation on one hand, it is just as imperative to lessen the diminution on the other. There is, therefore, no more a fever of congestion than of diminution. The truth is, this condition is no other than an accidental one, and is but a part of the phenomena, an occasional attendant of simple or complex excitation. But if it is a "fever limited to its first stage,"—that is, oppression, without preceding or subsequent excitement, then we can imagine nothing more paradoxical than the term used to express such a condition. It is nothing more than an isolated state of collapse, which if it have any connection with fever, can only be the closing result—the terminating scene of vital action. But with the definition just quoted, is the author altogether consistent
with himself, when he gives among the "depressing causes," an already existing excitement, for can that be called a fever with a single stage which is the result of a pre-existing disease? or which if there be a recovery of vital action, can only be attended by reaction, which is synonymous with fever, or excitement? If there be no reaction—no precedent or subsequent excitement, then this can be no more a fever than can asphyxia, or any other similar state produced by a violent and sudden lethal shock.—What are the causes productive of this condition, according to Dr. Armstrong? They are of two kinds; the first are properly diseases, of which the congestion is a sequence—such as hemorrhage, profuse evacuations, and intense pain; severe accidents, or surgical operations, exhaustion from violent exertion; the second are causes, which when they produce any effect without reaction, in other words, produce immediate death, such are violent mental shocks, sudden exposure to cold, &c. We will give the author's views of the immediate action of these causes.

"It arises from the shock of any common depressing cause, as sudden exposure to cold, intense pain, severe accidents, or surgical operations, great exhaustion proceeding from violent exertion, from hemorrhage, profuse evacuations, or deficient nourishment, food which offends the stomach, mental shocks, &c. The effect of these causes is at once to overpower the system, and they are more prompt and energetic in their action, in proportion to the weakness of the person on whom they operate. This debility may be general or local: general, when all the functions are languidly performed, as in a state of disorder or disease, in convalescence, or when the body from infancy or age, is incapable of opposing a prompt and efficient energy to rise elastic from the pressure of any sudden debilitating cause; and local, when particular parts are enfeebled, from hereditary or acquired defects."* p. 128.

And again, at another page, it is observed, that,

"The exciting causes of common congestive fever, acting through the blood or the nervous system, produce effects which, in extreme cases, are more formidable than those of inflammation, because it is only on weak subjects that they exert their full power, and in them they often suddenly sink the energies of the body to an almost hopeless condition.

"The body has experienced an overwhelming shock; the animal heat is so suddenly reduced that the blood immediately retires from the surface to the central parts; the heart is so much pressed by its accumulation in the right cavities and the two caves, that it is of itself wholly unable to overcome the impediment to the freedom of the circulation; the venous system becomes generally overloaded, while the energies of the arterial are prostrate; the respiration is weak and embarrassed, and the blood imperfectly carbonized, so that the brain and nervous system are thus deprived of their natural stimulus—

* This stage or form of fever more frequently arises from the operation of specific causes, and is then the most formidable of all the varieties of fever.
Armstrong's Medical Opinions.

whence the muscular power fails for want of excitation, and all the functions languish." p. 183.

The predisposition to this venous congestion, it will be perceived, depends, according to Dr. Armstrong, upon local or general debility. But simple congestions, or rather the congestions of the "common fever" of the author, are of the same order as excitement, and are always present in the commencement of febrile disease; most of the phenomena, indeed, accompanying the prodrome are evidences of congestion.

There are three different degrees in which this condition is manifested, according to Dr. Armstrong, viz: an extreme, an intermediate, and a milder form. In the first, there is a revulsion of the capillary circulation of the skin:—the pulse, respiration, and muscular and sensorial powers give imperfect indications of action, and according to the author, require hot external applications, and the most powerful diffusible stimuli. In the second, there is a less general and serious affection of the powers and functions of the economy; prostration is less manifest—the vital forces giving evidence of oppression, but attended with some signs of reaction. The abstraction of blood is required, stopping short of syncope, however, and only in a degree sufficient for the removal of the existing symptoms. The third form is attended principally by simple languor, chilliness and those precursory signs of super-excitement of some particular organ at the expense of others, which evidence the interruption of healthy balance in the inception of fever. "A warm bath, rest afterwards in bed, or an emetic followed by a dose of calomel, will avert the severer forms of congestion, and the probable supervision of an attack of inflammatory fever." So that in at least two of the forms, the previous debility is not always increased by the "overwhelming shocks," but they have the peculiar effect of putting in requisition the very means of relief that would be called for in the several degrees of acknowledged excitement. Besides, so far from there being among the author's first class, a fever limited to its first stage of oppression, there is the same necessity for being prepared for all the developments of excitement, either in a simple or complex form, as is known to exist in the initial or precursory stage of every fever;—there is nothing distinctive then, for there is the same accompaniment of general phenomena that is met with for the most part in ordinary reactions. In the extreme form there is, indeed, but one stage so long as the case remains beyond the influence of powerful stimuli, that is, conceding the necessity of such stimuli,—
but this condition has not any of the phenomena of fever, for reaction and fever are synonymous; but if the stimuli, or other judicious applications of remedial means act beneficially, then this very reaction, which must be the only result, puts to flight all limitations to single stages. In the use of the term congestive, in reference to a distinct type of fever, an order separate from excitement, in its restriction to cases of debility, and in the indications thence deduced for the treatment of what cannot be considered as any other than a mere contingency, we think Dr. Armstrong labored under much error. Much credit certainly is due to him for his investigations on this point, but many of his views, are nevertheless, extremely hypothetical. Let us refer for a moment to his work on Typhus, which most of our readers must be familiar with, and in the cases he reports "as tolerably fair examples of the more violent forms of congestive typhus," and we are very much mistaken if there is not found evidence sufficiently convictive of the danger that would arise from contemplating this condition as one of debility, or one requiring powerful stimuli. If our readers, bearing in mind that these are not cases of common fever, but of the more violent forms of specific or typhus fever, will examine the pathological signs there detailed, and the mode of treatment the author himself adopted, they will discover one of two things, either an inconsistency in the means used, or, in the pathological views in the work before us. These cases, we suppose, must belong to the extreme form of congestion, and yet we think, there will be no disagreement from the opinion that had blood-letting been followed in the cases there would have ensued the same happy result as in the single instance where such was the practice. It would not at all be wonderful, that there should be but one stage to a condition where improper, or not any means are used to relieve the vital elasticity of the weight of intense oppression;—but we cannot agree with the author, that this weight in any fever properly so called, is ever so great as to destroy that elasticity without some subsequent or even attendant excitement—some visible efforts to resume the healthful play of the living forces. Even in his own cases there was not only this effort palpably manifested, but an antecedent or prodromal stage of the same order as of ordinary excitements. If there is even such a condition as that referred to in the words we have quoted, "a fever limited to its first stage,"—a fever without reaction,—then it is just as proper to term an intensely fatal narcotism, or a blow upon the head, or any accident productive of sudden death,
Fletcher on the Influence of the Mind on the Body.

a fever, and give it a subdivision among what we all understand by febrile disease.

In our next number of the journal, we shall resume the notice of Dr. Armstrong's opinions, as we have not yet touched upon his second class, or specific fevers.

J. J. G.

ART. VIII. Sketches from the Case Book, to Illustrate the Influence of the Mind on the Body, with the treatment of some of the more important Brain and Nervous Disturbances which arise from its Influence. By R. Fletcher, Esq. Surgeon to the Gloucester General Hospital, and Consulting Surgeon to the Lunatic Asylum, near Gloucester. London, 1833, p.p. 391.

Whether there be greater enterprise on the part of booksellers and publishers, or more determinateness to obtain publicity, even though it be at some pecuniary cost, on the part of medical men, on the other side of the Atlantic, than with us here at home, we cannot say. But certain it is, that the issue of books, from the London press, for example, is far beyond what would be justified either by their intrinsic merit or the instruction and benefit which they are capable of imparting to the reader. The Sketches of Surgeon Fletcher, we regret to say, do not furnish an exception to this injurious fashion. Notwithstanding the imposing promises held out in the title page, we vainly seek in the body of the work, for novelty of principle, or of elucidation, or for a more successful application of known principles to practice. One might at first be induced to believe from his announcement of Sketches from the Case Book, that he was a favorite son of Esculapius, to whom had been confided the registering of the cases and cures of those who visited a second temple of Epidaurus; and that his was, par excellence, the Case Book; the only satisfactory and authentic clinical record of the age in which we live. Mr. Fletcher displays somewhat of the obscurity of the oracle, when he speaks of brain and nervous disturbances, which arise from the influence of the mind on the body. Such influence is part of the very constitution of human nature—as evinced in all the voluntary movements; and it cannot be considered as giving origin to disturbances or diseases. Mr. Fletcher's mode of announcing it would lead us to suppose that it is an unnatural state of things—something in itself abnormal and necessarily productive of morbid effects.
We will suppose, however, that the author means to speak of the irregular or excessive operations of the mind exerting a detrimental effect on the corporeal functions; and this seems to be his object and meaning in the work itself. Still we can see no reason for his implied claim to merit for directing attention to what, as he intimates, has been unknown or overlooked.

His creed is: "I believe that the brain, or the mind which acts through it, has more power in disordering the health, than it is generally supposed to have, and with this belief, some facts I have collected are here offered to the public."

Before we advert to the facts introduced by Surgeon Fletcher, we must say a few words touching the implied novelty of his creed. We entirely accord with him in his belief of the power of a disturbed mind in deranging the functions of the body; but we must differ greatly from the author, when he would intimate that this creed is either new, or that it has ever, in the history of medicine, been overlooked or forgotten. There is scarcely a distinguished name in the profession, but what will be found to sanction and confirm it. Ancients, not less than moderns, have been fully convinced of its truth. It was impossible that it should be otherwise, with the striking examples before them, of even death itself having been caused by strong mental excitement or depression—as from joy and anger on the one side, and fear and grief on the other. Plato covers more than the whole ground claimed by the author, when he expresses it, as his opinion, that all or nearly all of the diseases of the body depend on those of the mind. Is Mr. F. ignorant of the familiar fact, recorded in Grecian history, of the Spartan mother expiring through joy in the arms of her son, whom she had believed to be slain in battle; or of that other, of a similar nature, in Roman story, of a mother dying suddenly on hearing that her son had survived the battle of Cannæ. It was by a knowledge of this intimate connection between mind and body, that Hippocrates is said to have discovered the cause of disorder in a youthful patient: he held his fingers on her pulse, and noted its increased rapidity when the object of her love entered the room. Acting on this creed, Erasistratus detected the love of Antiochus for his step-mother Stratonice, in a similar manner. Homer knew it well, when he supposes that the soul of a person under the influence of fear descends to the legs, in order to prompt them to flight.

But, to come to these disturbances, on the detection or at least exposure of the cause of which Mr. Fletcher seems to plume
himself; we may begin with the language of the literary Florentine, Marsigluis Ficinus, who, after describing the attention which all workmen and mechanics pay to their implements and tools, adds—"the literati alone neglect that instrument, their brain, which they daily use, by which they range over the world, and which by much study is consumed." Boerhaave relates of himself, that, after continued reflection of some days and nights on a particular subject, he fell suddenly into a state of debility and prostration, almost resembling death. A diseased stomach, says a celebrated Portuguese physician, follows literary characters as the shadow follows the body. Of the various hues in which hypochondriasis, brought on and supported often by mental causes, presents itself, our readers need not be told. Epilepsy, as an occasional consequence of the excitement of passion or intense study, has also been often recorded. The febricula or slow fever, marked by daily paroxysms, is well known as an attendant on the sedentary and the studious. In fine, every observing or well read physician must be aware, that, among the diseases produced by a perturbed mind or one over-tasked by long intellectual effort, are enumerated not only a whole train of nervous disorders, so called, and dyspepsia and hypochondriasis, but also apoplexy, hepatitis, organic affections of the heart and obstinate disorders of the skin, with serious and alarming ones of the bladder.

Mr. Fletcher lays down, as part of his creed, a belief "that the brain influences the stomach, more than the stomach influences the brain." This may be true of those who make much use of their brains; but we apprehend that by far the larger proportion of persons in the world, exercise unduly their stomachs, leaving the more noble organ idle, or at most to be a recipient of sensations of a purely animal kind. That the majority are fidgety, fretful and capricious,—and complain of their heads being out of order, we can readily believe.—But such complaints are, we should suppose, for the most part referrible to manifest sinning against the laws of hygiene, and more particularly to erapulous and bibulous indulgences.

Here, however, we must do Mr. Fletcher the justice to say, that he disclaims any pretensions to "great originality"—although it seems that the light of knowledge on this subject, did not shine on his mind until the year 1530. He was then "more particularly struck with the power of mind over the health," from a trifling circumstance witnessed by himself. Better late than never is a homely adage, the benefits of the application of which
we grant to the ingenuous author. The history of this cure begins in quite an epic strain—as follows: "a guest in a noble castle, in whose halls reign magnificence and princely hospitality, was intently observing, on a fine October morning, the various preparations for a happy day." We regret our want of space to give the whole of this matinal scene,—part of which was "examples of the best and most generous blood in the kingdom—keenly engaged in various objects of interest;—some lol-ling over a magnificent breakfast and speaking rapturously of no common deeds soon to come." Lest our readers should suppose that war, or revolution is here alluded to; or that the nobles were banded to preserve their rights, viz. rotten-boroughs and sinecures, we must apprize them that the wondrous deeds to come were of a foxchase. After a dash of sentimental melancholy, the author continues in the following appropriate strain of grandiose description:

"The eye quitted the ancient pile and its reminiscences, and turned towards a more cheering view, the glorious luminary of day, with the fresh gale of autumn, slowly dispersing the mists from the bold and proud forms of the oak and groups of the tall and aged fir, as they were spread in masses of majestic grandeur over the wide bosom of the park. Soon the breeze and the sun together, rolled away the morning fog from another interesting object;—the unrivalled, and far-famed kennel in the distance. Taste varies. A strol-ler, &c."

The reader cannot but be forcibly struck with the consummate skill displayed in arranging the several parts of this description, and the peculiar felicity of its conclusion. The mind's eye is first made to gaze on the various masses of oak and fir, spread over the wide bosom of the park, and then following in the wake of the breeze and the sun—the fog-rolling Apollo, it is finally made to rest,—not on Snowden and the range of Welsh mountains, not on the Cheviot hills, nor on Ben Lomond, nor Ben Tevis,—but on the unrivalled and far-famed kennel. Well might Mr. Fletcher add immediately afterwards, taste varies; for some, we fear will have a taste so different from his, as to allow their bodies to be influenced through their minds by this singular display of fine writing to the utterance of sundry pshas and other exclamations, not of the most complimentary kind; or they may give way to a fit of laughter, unbecoming the gravity of the subject and the dignified style of the narrator—and certainly not in unison with the feelings of the guest in this noble castle; who in the next paragraph becomes all at once, as if he had en- countered the "evil eye," most sad and wo-begone. "A single
thought stole cruelly into memory and poisoned the cup already at the lip; in an instant, pleasure and hope vanished together,—and not a vestige of the boundless beauties around him remained.”

How is this! So it seems that Mr. Fletcher, in place of describing a real scene, in language somewhat poetical, has invented the whole—and we are left to imagine that the aforesaid guest was a kind of Aladdin, who could raise up a noble castle, and tenant it with sons of chivalry, and give it turrets, and ivy, and a wide spread park, with proud oaks and aged firs, and the unrivalled and far-famed kennel, and send out the foxhounds with their cheering notes for his amusement; and sundry gentlemen bearers of Joe Mantons;—when all of a sudden he is struck with melancholy, his charm ceases to work, and not a vestige of the boundless beauties around him remained. Now we take this conduct to be peculiarly unkind:—the moody guest need not, because he suddenly ceased to be himself charmed with the scene, have removed it altogether from the pleased and admiring eyes of others. Mr. Fletcher does not tell us what became of the lordly owner of the noble castle, nor of the other “examples of the best and generous blood” in it.

After this practical proem to his work, we were prepared to find sundry novelties of expression, if not of fact, in the book before us; nor were we entirely disappointed. Among the first and most pervading, are the terms mental dyspepsia and mental hypochondriasis. “When these gastric nerves are affected, so as to produce the phenomena of indigestion, from an impression given by the mind, I would give, says Mr. Fletcher, “the term mental indigestion to the disease.” On the same showing every cause of dyspepsia should give origin to a qualifying prefix, and we shall have alcoholic and vinous indigestion, tobacco and opiate indigestion; or if other functions, the disorders of which affect morbidly the stomach, are to give their titles, we shall have transpiratory, respiratory, and locomotory indigestion. That the mind, the sum of the functions performed by the encephalic organs, affects in a marked manner the stomach, is, we apprehend, no recent revelation in physiology and medical science; nor do we see how a knowledge of the fact is made any clearer by adopting the phraseology of the author of the book before us. We hold it to be far more correct to apply, as has been occasionally done, the term indigestion, somewhat figuratively, it is true, but in a sense which does not mislead us, to that irregular exercise of the faculties of the mind, which collects a store of ideas, but without order or method, or ability, on the part of the posses-
Fletcher on the Influence of the Mind on the Body. 163

sor, to render them available for the purposes of instructive conversation or writing. A person who reads without method, retaining in his memory scraps and fragments from various authors, imbibing a portion of the theories of each, without reference to the adaptation of one to another, whose mind is, in fine, somewhat chaotic, may well be said to labor under mental indigestion, whether his stomach be impaired or not in its functions.—Novel reading is apt to produce this disorder in young ladies, and certain metaphysical studies and scholastic jargon, at colleges, in young gentlemen.

An instance adduced by Mr. Fletcher, of mental dyspepsia, presents nothing very wonderful. It is of a person, who, after eating a hearty dinner with becoming relish, finds, among his evening letters, one containing "a returned bill of £5000, he himself being unable to find one." Quere: is it one bill or one pound? The effect of this unexpected missive is first to disturb the mind and next the stomach of the merchant.

The following remarks are applicable to existing evils, which it is easier to point out than to remedy. "One of the various faults in our system of education, is a want of philosophical attention to indications of character, the neglect of which is evinced in classing children, of all varieties of moral tendencies, under the same governing principles, and exposed to corrupting effects of a congregation of every kind of irregular character—the coarse are mingled with the refined, the vicious with the child of deep sensibility, who feels every thing, and needs only to be properly incited, to become all that human nature is capable of producing in the shape of a noble being." It is a knowledge of these evils which induces some parents to educate their children at home.

The general symptoms of mental indigestion, as the author terms it, need not be repeated—they are neither new nor detailed with any remarkable clearness. One need not be told, that where the brain and stomach are both in a state of irritation—no matter with which of these organs the disease began, the sufferings of the individual must be great. The nervous system is, in particular, the seat of anomalous and most troublesome sensations.

We are next favored with a chapter on mental hypochondriasis. Touching this title, we might ask the worthy author, whether he ever saw or heard of hypochondriasis that was not mental, so far that the mind was disturbed by various phantasies, hallucinations, or images of gorgons dire? But Mr.
Fletcher would persuade us that the more rare and refined species of mental wretchedness, is mental hypochondriasis, and is directly contrasted with the more common or corporeal kind.

The irritable brain is mentioned by Mr. F. as another effect of mental suffering. Is not this irritability as often a cause as an effect? But we need not pursue the path of inquiry, marked out by the author, for reasons already assigned. He is unhappily more successful in observing known and admitted principles, than in eliciting new ones. Speaking of the bellows-sound of the arteries as occasionally an effect of derangement of the nervous power, he gives us the following singularly lucid notions of what he means: "The bellows-sound is curiously evanescent, like an ignis fatuus; or rather, its floating melody pervading the body, often reminds me of the far distant, though more charming music, heard in the woods at midnight, near the Chateau Le Blanc, so beautifully described by Ann Radcliffe, which could be distinguished in the pauses of the storm, or in a calm night, and sometimes was so wayward and capricious, as to make it doubtful whether it was heard or not." It is to be hoped, that this bellows-sound will not be forgotten by the next novelist, who wishes to work up a good ghost story, with an ignis fatuus sound, and which is withal, so wayward and capricious as to make it doubtful, whether you heard it or not:—We may presume that, the children of the west were familiar with this kind of music. After all, is it not a modification of the sounds of the scotch bag-pipe, when played by a piper, who has the gift of second sight.

Among the truisms in Mr. Fletcher's work, is the announcement of memory and imagination, as the faculties of the mind more particularly concerned in disturbing the health through the agency of the nervous system. To prove this, we have a chapter of most elaborate and artificial description—which like a chapter in certain novels, leaves the reader where it found him.

In the chapter on the general treatment of disorders in which the mind is perturbed, we find some sensible observations and directions, the value of which is, however, not a little diminished by the constant straining of the author, to say something fine, and to couch common-places in the language of philosophy and sentiment. The great misfortune in the present work is the necessity which Mr. Fletcher thought himself under of making a book, in place of writing, if write he must, a short essay—such an one as might very well have appeared in one of the many medical journals of Great Britain. After some remarks on the
true value and bearing of religion, when appealed to as consolation to a mind diseased, the author proceeds to give directions how the patient is to be treated under the circumstances already premised. If a sportsman, he should be as much in the field as his strength will allow; and if a shooter, he should be placed where game abounds. We presume that he ought not to read Cowper’s lines on the subject of hunting and shooting. “The patient should never be left to himself, especially in the morning, unless under some particular circumstance of being engaged in other employments to be presently described.” We cannot but think, that many very sensitive and nervous personages would feel not a little annoyed, if not actually exasperated into a fit of mental indigestion, by the unceasing espionage here recommended. The patient should make it a positive rule, which his friends should see enforced if necessary, to rise as soon as he awakes. If it be the summer season he must sally out and take a long walk, or if too weak for this, ride as rapidly as possible before breakfast. A trip or a start will be now pleasing and valuable, says Mr. F. A large number of dyspeptics are, we ought to remember, made worse by any kind of exercise before breakfast.

“The morning exercises should always be accompanied by a pleasant companion, if possible, who will talk agreeably in the necessary pauses of the exercises.” Good advice, most learned doctor! but what proportion of nervous invalids can avail of it. A pleasant companion,—that is, an agreeable and judicious talker,—if such could be engaged by the morning, with the horse and his equipage, he would, we doubt not, be most liberally patronized. Nearly alien to this advice is the direction to keep away the unpleasant subject of the patient’s thoughts—to blind, hoodwink, or smother it in some way or another. No coarse person should be admitted to the patient to laugh at him. Very good also—but at that rate we fear his company would be marvellously select.

On the subject of reading in this disease, we are told that, “persons in affliction, with an agitated nervous system, cannot read, except indeed, at very rare seasons of amendment, when advantage should be immediately taken, which this opening may afford, and the works of Cooper especially, Scott and Washington Irvine, should be thrown into it, that their busy operation and stirring scenery, may assist in breaking up and scattering the sad habits of mischievous association which the mind has formed.”

But the grand remedy, the solace for all sorrow, in the opinion of Mr. Fletcher, is the practice of composition. No matter
whether he be inclined or not, or whether his mind be torn by the most agonizing reflections, the patient must sit down and write. Some simple minded persons have thought this an exhausting process; but the author assures us that it “directly relieves the worn and exhausted moral part of man, and not only leaves that in order and peace, which it found in confusion and miserable, but gives a strength and renewed vigor to it, that both gratifies and astonishes the once despairing patient.”

There is, Mr. F. admits, some difficulty in making a beginning c’est la premiere phrase qui coute, as we may say, in slightly altering a common French proverb. The patient must not be deterred from writing by his conscious unfitness of becoming an author,—he must, if thus diffident, make extracts in verse and prose, and arrange the ideas of their several writers in his own language. We are inclined to think, that Mr. Fletcher may have amused himself in this manner, and hence the prose, run-mad style of some of his chapters, and the odd turn of thought in others. He may say in the language of the venders of Haarlem oil.—Probatum est.

The medical treatment and diet of persons in ill health from mental affections—consists according to Mr. Fletcher, in gently unloading the bowels—the stomach nerves to be assisted and strengthened—sedatives—local bleedings—tonics—cold affusion to the head. He disapproves of purgatives in moral indigestion; also of general bleeding. Now, we should think catharsis the very best means of cleansing the mind of its impurities, and crudities when in this deplorable state. Hellebore at one time was in high repute for this purpose.

“But of all means of equalizing the circulation, and relieving the head from feeble congestion,” the exercise of walking is declared by the author to be the most decisive. Riding on horseback, sparring, and shuttlecock, are recommended—the two last in bad weather.

Touching the diet, we have room for only one extract. “Tea and coffee, especially the former, are rank poison to these sad mental cases which, in the shape of nervous maladies, disorder the health.” How many, especially of the female sex, can bear witness to the truth of this assertion.

It is a sensible remark of Mr. Fletcher, when he says on the subject of sleep. “I would advise the mental sufferer to attend to no rules on this subject, which forbid day sleep.”

We feel ourselves unequal to the task of doing justice to the author’s poetical reflections under the head of “The morning air
and conclusion," and we must even ourselves draw our comments to a close without the aid of such embellishments.

One chapter of the work has rather an ambiguous heading, which would greatly disappoint the general reader, whose eye might perchance rest on these meaning words—"On the mind as influencing the fate of great operations." Not to keep our readers in suspense, we hasten to apprise them that this influence is not the display made by master minds who have created by their actions, eras in the history of the world; but is, neither more nor less than simply the influence exerted over the results of surgical operations by the state of mind of those on whom they have been performed.

Mr. Fletcher closes his work with several cases, the bearing and intrinsic value of which may be estimated by the titles.—Such are Mental indigestion from worldly misfortune,—a very common case we should say,—Disturbed nervous system, with indigestion from domestic affliction, and an awakened conscience—Mental indigestion affecting the bilious temperament—Extensive nervous disturbance, or mental indigestion from fright.

The following title conveys with it some instruction—Chronic neuralgia, or excessive irritability of the gastro-intestinal nerves from anxiety originally, kept up by hebdomadal purgation and ordinary routine food—Irritable brain, with the bellows-sound of the arteries—Irritable brain from wounded vanity—a common case, from the corporal up to the leader of armies, and from a writer in ladies' albums to Lord Byron.

Here we bid adieu to Mr. Fletcher and his book—the former would have been wiser had the latter been smaller, with less poetry and more medicine; or even the same facts and ideas with a centesimal part of the words employed. J. B—l.

Art. IX. A Treatise on Inflammations; explaining their Pathology, Causes, Consequences, and Treatment, with their effects on the various textures of the body, being an extension of a "Dissertation on Inflammation of the Membranes," to which the Jacksonian prize, for the year 1828, was awarded by the Royal College of Surgeons in London. By George Roger-son, Surgeon, of Liverpool, Vol. i. pp. 459, Lond. 1832.

Were the question asked "in what degree have the therapeutics of inflammation been illustrated by the numerous speculative, or even experimental, inquiries which, in relation to the
essential nature of that state of disease, occupy so much space in the annals of medicine, the answer would by no means be flattering to the earlier cultivators of pathological science. There can be no better evidence of the truth of this assertion than the fact, that when theorists have diametrically opposed each other in regard to the nature of inflammatory action, they have often perfectly agreed as to the proper method of its treatment. Indeed, in this last respect, writers almost perfectly coincide. The fact is, that the therapeutics of inflammation have been established empirically; that is, by the experience of practice. In blood-letting and in the use of refrigerants, for the cure of inflammation, no one pays the least regard to the doctrines of Boerhaave, of Hunter, of Cullen, or of Vaccar, relative to the proximate cause of this state of disease. So universally established is the salutary influence of certain remedies, that their effects furnish facts which have often been employed in support of pathological doctrines—facts, too, with which every theorist has found it necessary to reconcile his peculiar opinions. That part of physiology which relates to the agency of the extreme vessels in the circulation of the blood, and the changes which that fluid undergoes in its transmission is not yet sufficiently satisfactory and precise, to furnish us with any sure basis in regard to the pathology of the same organs. Inflammation may in general terms, be defined, a morbid exercise of the functions of the extreme vessels in the circulation and modification of the blood. But how shall we determine with any precision what that deviation from healthy action is, before we can speak with confidence in relation to the office of the vessels in the normal exercise of the circulation? The nature of a diseased office is certainly less easily detected than that of a healthy, regular and uniform function.

It would appear, therefore, that heretofore a method of investigation had been pursued in regard to the nature of inflammation, which is by no means consistent with the principles of inductive philosophy, and we cannot but look back with deep regret upon the waste of time, talent, and labor in the pursuit of a delusive object, which, especially with the imperfect guides then possessed, merely led the inquirer into the labyrinths of metaphysical speculation.

But our inquiries concerning inflammation have, within a few years, assumed a totally different direction. Inductive reasoning, though slowly adopted in medicine, has diverted the mind from the pursuit of unattainable objects, and rendered our progress in
pathology in a degree certain and permanent, though slow and often difficult. The great reform in medicine commenced with the labors of Bichat. When anatomy had apparently revealed almost every thing of the human organism which our senses can appreciate, and seemed to languish for want of subjects of research, the analytic hand of Bichat, in his general anatomy, opened a totally new field of inquiry, and led the way to corresponding advances in physiology and pathology. No department of pathology owes so much to the anatomy of the elementary tissues—the knowledge of their physical and vital qualities and their susceptibilities in disease, as that of inflammation. As recently pursued, indeed, it is a subject almost wholly new, and already it has revealed more acknowledged truth, than had for ages previous been established in relation to this important department of pathology.

In the work before us, inflammation is investigated with the aid of modern lights, it being studied, as the title informs us, with a view to its "effects on the various textures of the body." Many of the opinions of the author, do not accord with our own, (no proof of their erroneousness, we grant,) and we shall occasionally endeavor to point out the fallacy of his reasoning. There is, however, a vein of good philosophy running through the work which should recommend it to the profession, and it shall be our task, by a careful analysis, to furnish this to our readers. As the work will probably not be republished in our country, we shall endeavor to give such an abstract as shall contain the spirit of the entire work, and supersede, with the general medical reader, the perusal of the book itself.

PART I. Principles, Classification, and Causes of Inflammation.

Sec. I. Being devoted to "the history of opinion on the nature of Inflammation" we shall omit to notice it, since that which it contains is already, in various forms, in the possession of our readers.

Sec. II. Gives us the author's general principles of medicine. These are his physiological and pathological postulates, on which he bases his opinions. They are, for the most part, such as are generally received; but in order that our author may be understood, we must briefly notice some of them. He considers that all masses of matter, whether termed living or dead, are only modifications of each other's atoms, which consequently possess the same general properties; and that there is no matter without
power, nor power without matter; a principle which we shall see is essential to some of his opinions.

Mr. Rogerson resolves all pathological states into, 1st, those of disorder; 2d, those of disease. These he makes to correspond respectively to the functional and organic diseases of authors; we scarcely, therefore, see the necessity of introducing a new phraseology.

Inflammation is regarded as being, primarily, disorder of the part affected; but as always the forerunner of disease. He considers that disorder, or disease, may occur primarily in either the solids or the fluids, but that the pathology of the one must soon derange the physiology of the other.

Our author avers that there is no fever without some local malady on which it is dependent. This, however, though one of our author's postulates, is not exactly a datum; yet we are not disposed at present to discuss the question relating to it. But here follows a declaration which the most hardy polemic in medicine will scarcely venture to gainsay; "a sick man cannot be relieved or cured by being made sick, or unwell; nor can he be made better by being made worse." One would think "there needs no Jacksonian prize essay, to tell us this;" yet we are glad to lay something before our readers in regard to which even doctors cannot disagree.

Disorder of structure is very frequently curable; but disease of the same is removed with far more difficulty; when an abnormal substance is formed it is incurable except by removal.

Sec. III. Is devoted to an examination of the textures and powers of the vascular system. The opinions of our author relative to the constitution and powers of the blood are to us somewhat unique. He says, that there is no mechanical or physical power which holds together the proximate constituents of the blood, (serum, crassamentum and globules,) but that this is effected by a power which Sir G. Blane terms the conservative. Another power which he ascribes to this fluid, is the forming power, which is the parent of the living structure; also, there is the power of coagulation, the cause of growth, reparation and secretion. This last he regards as a power, or property, in this fluid analogous to irritability of the muscles, and as independent of mechanical or chemical properties belonging to this fluid, as well as of influences exercised by the solids.

But we must particularly notice the opinion of our author, that there is also a power of motion inherent in the blood, and which assists its circulation. He considers it absolutely neces-
sary to suppose some such power, as adjuvant to the action of the heart and arteries, which, he says, are manifestly inadequate to the performance of the complete office of the circulation. He denies that there is that, either in the mechanism of the heart and blood vessels, or in the vital properties which are bestowed upon them, sufficient to maintain the perpetual current of the circulating blood. He denies that the heart is essential to it, because, in fetal monsters at the full period, it is sometimes wanting; and also because in some insects that have a circulation, the heart is absent. He denies the doctrine of Mr. Barry, relative to the suction power of the heart, in soliciting forward the current of the venous blood to that organ, and opposes to his conclusions the experiment of tying with a ligature a large venous trunk near the heart, when it will be found that the vessel fills tensely, although cut off from all reflex influence of the heart. Our author very clearly shows, that the heart must, at least, be assisted in its office by the capillary vessels, but even this does not appear to him to be sufficient. He states, that although the capillaries undoubtedly exercise an influence on the current, yet the blood sometimes moves through them while they are at rest, and by a motive power of its own. In blushing, for instance, the vessels concerned are so surcharged, that their contractile influence on the current must have ceased, and yet the current continues, and, according to our author, must be sustained "by the moving power of the blood," because "there is no other power, physical, mechanical, or vital, to which it can, by any possibility, be attributed." But surely it is quite as possible to attribute it to the power of the heart, now more sensibly felt because of the dilatation of the vessels, as to the mysterious power invoked by our physiologist.

Another argument in favor of this bold hypothesis, is derived from the assertion, that as the capillary arteries are extremely small, the force of such vessels in propelling the blood must be exceedingly trivial. But surely our author ought to be reminded, that as the arteries diminish in size, so does the diameter of their current, and indeed more rapidly. A small vessel has always more voluminous coats than a large one, in proportion to the diameter of its canal. The amount of contractile power thus increases as the vessels recede from the heart, for although they diminish by division, yet are they greatly multiplied in number, and indeed in a larger ratio, for the combined volume of the arterial tubes is evidently greater, the more remote they are from the heart. We have every reason to be-
lieve, that the amount of general contractile power in the extreme vessels, is greater than that of the heart. How surprising, then, our author's statement, that the general force of these vessels must be small in the circulation, because they are minutely divided!

The motion of the blood in the veins is regarded by Mr. Rogerson, as strong evidence of the motive power in this fluid, because he can discern no other sufficient agent. The heart and capillaries he thinks cannot alone cause it; nor the various adjuvant impulses communicated by the pressure of the muscles, gravitation, &c. complete it. We will not follow our author through his unsatisfactory, metaphysical argument, by which he comes to the conclusion, that every vital fluid has a power of self-motion. Of the part which this motive power of the blood is to play, in our author's theory of inflammation, we gather some idea from his statement, that "the motion of the blood is the most easily disordered of all its powers, often forcing into the same state the other power, and thus exciting and establishing inflammation."

We cannot permit this assumption of Mr. Rogerson, (which however was shadowed forth by Hunter, in his observations on the vitality of the blood, and has been recently advocated in Germany and England,) in regard to the self-motion of the blood, to pass without a remark. And first, let us inquire of our author, if he can possibly conceive of locomotion being performed by any being or substance, through a power wholly within itself, without some mechanical apparatus for the accomplishment of the mechanical effect? The property of contractility, (which, however, is not demonstrable in the blood, though asserted,) is not alone sufficient to effect the self-motion of any substance. There must exist some elastic or rigid material, determining form, and by its resistance modifying the effect of contraction, and enabling it to change the form of the substance. How can any thing possibly move by its own effort, without obtaining some point d'appui, on that upon which it moves, and alternately extending and contracting itself? Every thing in nature, it is true, is acted upon by motive powers, such as electricity and gravitation, but we are not a little surprised that our author should have appealed to the analogy of these powers—for manifestly they are external agents.

Again; to assert that a fluid possesses the power of self-motion, is to express a perfect solecism in philosophy, for the very definition of a fluid quality is, that the substance is wholly
yielded to the extraneous power of attraction, and possessing no means of resisting the change of form which this power produces in it. Any fluid substance poured into a vessel instantly assumes the form which the attraction of gravitation bestows upon it, and could it change that form, it would no longer be a fluid.

Modern logic will never allow us to adopt so gratuitous an hypothesis, for the mere sake of circumventing those difficulties which now embarrass the physiology of the circulation, were those difficulties even as great as he avers. Could our author substitute that which is demonstrable, for that which is now in part conjectural, it would be received with alacrity; but who would not find it more difficult to conceive of the blood as worming its way through our vessels, literally creeping through our veins, than to understand how the powerful impulse of the heart, and the well-established action of the capillaries, can sustain the circulation? He must develop some new principle in vital or physical philosophy, before his hypothesis can be for a moment received. Could he show us the self-motion of the blood, we should then be compelled to believe, however difficult the explanation. Our author, indeed, makes a vital personification of the blood as fanciful as that of the poet, when he speaks of it:

"As rushing out of doors to be resolved
If Brutus so unkindly knocked or no."

Sec. IV. Is devoted to the classification of inflammations.—Of them our author avers that there are several distinct varieties, and that all the diseases of every structure in the body are caused by them. He objects to Mr. Hunter's mode of distinguishing inflammations by their terminations and their specific properties, as by so doing he confounded often the effect with the cause.—He also denies that the diversities of inflammations depend wholly on differences of texture, although modified by them. He denies, for instance, that phlegmon is confined to the cellular tissue, and adduces the authority and arguments of Hunter and Samuel Cooper, in support of his opinions. He also declares that the same tissue may be affected with different varieties of inflammation. Common inflammation attacks all the tissues and parts of the body.

Mr. Rogerson endeavors to show that erysipelas by no means takes its character from the peculiar texture and qualities of the skin, because not always confined to the skin. He says that it
often attacks the mucous membranes, the serous membranes and the cellular tissue. We must demur to this opinion of Mr. R. for we believe that erysipelas is an inflammation of the integument alone. It may indeed attack the mucous membranes; but what are they but the internal integument, organized in a great degree like the skin? An inflammation differing no more from erysipelas than the mucous membranes do from the skin may with perfect propriety be termed erysipelas. We deny that true erysipelas attacks the serous membranes. An inflammation of the skin may be translated to the serous membranes, but it then loses the characteristic traits of erysipelas and assumes a new character. We are disposed to believe that our author is both right and wrong in this matter; we believe that there are different specific inflammations which may occur in the same tissue, or in different tissues; but we also believe that common inflammation may so vary in tissues which differ remarkably, as to be with propriety regarded as presenting different varieties. Common irritants will produce different varieties of inflammation in different tissues; thus a burn or a blister will create erysipelas in the skin; while a seton thrust through the cellular tissue will cause a phlegmonous swelling and suppuration.

Mr. Rogerson divides the different species of inflammation into four classes, "according to the general state of the affected part during its inflammatory stage."

1. Inflammations which are limited to a certain extent on structure.

2. Inflammations whose dispositions are to spread.

3. Inflammations which during the inflammatory stage disorganize structure, converting it into a nature sui generis.

4. Inflammations which arise from some morbid or poisonous matter on structure.

According to our author, either of these may attack any texture in the body, although partial to particular ones. The common inflammation generally terminates in different ways in different tissues; as in purulent secretion, when the mucous membranes are affected; a limpid secretion when the skin is concerned; adhesion, when the serous, &c. &c. This does not hold in regard to specific inflammations, such as venereal, scrofula, &c.

One membrane may alone suffer inflammation, even when associated with others in the structure of an organ; thus, the mucous membrane of the stomach may be inflamed without imparting disease to the muscular, &c.; so also the peritoneal. This
is owing to difference of structure. Nevertheless, this is not universally the result, for often disease is imparted from one tissue to the contiguous, till all the tissues of an organ are involved; but, very rarely are they all simultaneously affected. Our author terms inflammation simple when confined to one membrane; compound, when more than one are effected; and organic, when all the tissues of an organ are involved. The first is most frequent; next, the second, and it is generally erysipelasous; but the third is very rare.

That some diseases do not spread, but merely die away in the surrounding parts, is owing to the strongly organized state of the surrounding parts. This power of resistance varies in different textures; it is most feeble where capillaries are abundant; is feeble in membranes; but more perfect in cellular tissue, where it is aided by the effusion of coagulating lymph around the part diseased. The limiting species of inflammation is usually divided into the acute and chronic, which distinction is, however, objected to by our author.

The spreading of the inflammations of texture is owing principally to the organization of the part at the time, and to the state of the system. It spreads by contiguity, as erysipelas; or by translation, as gout; or from part to part by means of systems, as cancer. Erysipelas is an erratic inflammation, spreading by continuity of surface—sometimes contiguity. Sometimes, therefore, it is compound. Often it spreads rapidly along the absorbent vessels and glands. When erysipelas is imparted to the cellular tissue, it becomes that variety of compound erysipelas often termed phlegmonous erysipelas—a phrase condemned by our author, because the inflammation does not result from the union of erysipelas and phlegmon, but is true erysipelas extended to the cellular tissue. To this, however, we demur. He also avers that compound erysipelas often occurs in the mucous and cellular tissues; serous and cellular; cutaneous and fibrous.—The terminations of erysipelas he declares to resemble those of common inflammation. He objects to the common opinion, that it does not produce pus, and says that he has seen this result even when it is confined to the skin. In the mucous membranes it causes the effusion of lymph. The opinion that erysipelas is prone to terminate in mortification, he considers a gross error; though he admits that in the cellular tissue this is not an uncommon result.

Rheumatism and gout are examples of inflammation spreading by translation. He considers them so similar that he treats of
them as but one variety of inflammation. Opinions in regard to
the nature and seat of this inflammation have been very various.
One refers it to the muscular tissue; another, to the synovial;
another to the aponeuratic—to the tendons and ligaments—to
the nerves. One regards it as arising from irritation; another,
defect of nervous power, or a peculiar diathesis. The disease
has all the traits of inflammation. The constitutional symptoms
accompanying the rheumatic inflammation, are often very in-
tense. It is prone to terminate in resolution, and may continue
a long time without impairing textures; but sometimes it pro-
duces debility, rigidity, extravasation, thickening, or alters se-
cretions; very rarely, however, producing pus. He here speaks
of the well known chalky deposits of gout.

The inflammations which disorganize or change structure,
are, the serofulous, the carcinomatous, and the spongoid, or me-
dullary sarcoma. These also spread, and chiefly, through the
absorbent system, but involving all surrounding parts. Serof-
fula, maugre the contrary opinion of Professor Thompson, pri-
marily affects the absorbent glands, but may, in rare instances,
first affect membranes. It rarely appears but where glands and
absorbents are abundant. All the membranes of the body may
become at length disordered. It is almost confined to the early
periods of life. Serofulous inflammation causes soft, flaccid,
and, at length, elastic swelling, by the ingress of white fluids,
the vessels of which are chiefly concerned. The nerves are not
much concerned, and hence but little sensation. The progress
is indolent and sluggish, but produces change of structure; first
the cellular tissue becoming indurated, then the glands becoming
more vascular, and the parts altered by the deposition of a pe-
culiar matter, leaving a substance like cheese, studded in various
places. Sometimes it is more curdy and purulent. The fever
is gastric, low, unhealthy, and at length creates the serofulous
aspect of countenance. When important organs become in-
volved, hectic occurs.

Serofulous inflammation generally terminates in ulceration,
abscesses full of curdy matter being formed. These, when they
open, present a smooth, irregular, obtuse margin, overlapping
the ulcer; granulations—fleshy, light red, indistinct. The ulcer
results in a hard, rigid, projecting eicatrix, causing contractions.

The spreading of serofula has been accounted for by suppos-
ing a virus in the matter secreted, but this is disproved by the
fact that it cannot be propagated by inoculation—not even by in-
jecting into the vessels.
Carcinoma, commences generally in secreting glands; but every structure may be primarily or secondarily affected. Its nature has been supposed by some to consist in vitiated humors; by others, acrid acids, &c.; by others again, in a specific virus; by Carmichael, in parasitical animals. Our author approves of Nesbit's opinion, "that cancer is an obscure inflammation," stimulating the vessels to form a new structure—swollen, hard, heavy. The surrounding cellular tissue forms an imperfect capsule; vascularity considerable; enlarged veins traverse the tumor, the blood having remarkably the venous character. The veins are more concerned than any other part of the vascular system. The author believes that the peculiarity of structure and malignancy, is owing to the venous character of the blood used. Sometimes the skin is dusky from the same cause, livid, or purplish. Morbid sensation exists, the structure probably assuming a new sensibility, the pain being lancinating, at times violent, leaving a sensation as if the part had been wrung or twisted. The character of the pain, however, is not an infallible criterion. Sometimes there is sense of heat, sometimes of cold. The physiological office of the organ affected is destroyed, or perverted.

By cancerous inflammation the texture of a part is slowly destroyed, and the cancerous structure substituted, this varying in some degree in different tissues. The most characteristic trait of this structure is found in the firm white bands, radiating from a central nucleus, having a firm brown substance intervening between them—sometimes cells with pulpy matter. Carcinoma spreads by the growth of these bands. The surface is rough with nodules; the tumor becomes fixed by adhesion to the surrounding parts. The disease principally spreads along the system first attacked, but also by contiguity. The skin at length becomes involved and puckered. It does not spread by any specific virus, as it cannot be propagated by inoculation.—A disposition to the disease extends beyond the limits of the tumor, and hence the propriety in removing it, of carrying the incisions beyond its limits.

Cancerous inflammation never tends to resolution. The ulcer in cancer is partly formed by ulceration, and partly by sloughing of the pulpy intervening substance; a thin ichor is discharged, exoriating the skin. The edges of the ulcer are ragged and turned in or out. The surface is uneven with eminences and excavations; the pain becomes excruciating; hectic
supervenes. Sometimes an ineffectual attempt at separation is made by the vessels, and fungous granulations arise.

The fever is mostly gastric, or nervous. The author remarks upon the peculiar aspect of the countenance, which is thin, sharp, anxious, in a degree to be with propriety termed cancerous. We have particularly noticed in this diathesis a brownish opacity of the skin of the face, and a remarkable dusky halo around the eye.

Although any parts of the body may become the seat of cancer, those most subject are the mamma, the uterus, the testicle, the lower lip.

Our author considers that the spongoid inflammation of Burns, the medullary sarcoma of Mr. Abernethy, and other malignant diseases, are referrible to the same general principles, they being varieties of disorganising inflammations.

The fourth class comprises inflammations arising from poisonous matter. Some poisons affect merely a particular tissue, others a system, and some all parts. Itch selects the skin, gonorrhcea a portion of the mucous membranes. Mercury and the venereal virus poison the absorbent system. The poison may be animal, vegetable, or mineral. Some are generated in the human system, as that of small-pox. Our author here strenuously objects to the terms contagion and infection as commonly received, and as signifying a kind of ideality; he considers, that in every instance of the production of disease by contagion, a poison, solid, fluid, or gaseous, excites a peculiar form of inflammation in the part with which it comes in contact, which inflammation is the essence of the disease.

The state of texture affected by animal poisons is various. There is increased and peculiar vascularity;—the sensations and the secretions are peculiar. The forming vessels have a peculiar action, and also the absorbing vessels. The disease is sometimes rapid and violent—sometimes slow and insidious, as the majority of human poisons, such as the venereal virus. They lurk for a long time in the system, and at length produce local inflammations, commonly called secondary symptoms. So uniform in character are they, that they make known the form of primary local disease which produced them. The author here refers to the opinions of Mr. Carmichael on venereal, and some of them he controverts.

The changes in the textures and systems from poisons pass away by time, and leave the constitution free. The time necessary varies; probably none which do not destroy life are permanent.
Hence, the reason why small-pox attacks in some instances a second time, and why it is necessary to re-vaccinate.

Dead animal matter, as from punctures in dissecting, and venom secreted by reptiles and insects, produce poisonous effects. The poisons generated in the mammalia, as the rabid dog, are slow—those of insects, rapid and violent.

The inflammations caused by vegetables are generally common.

Mr. Rogerson believes that the venereal inflammation is naturally limited, but the matter and diseased structure being absorbed, affects the body. The blood becomes charged with it, and affects the system, producing the secondary symptoms of syphilis.

It is a law applicable to all poisonous inflammations, that they have particular terminations, and commonly either suppurate, ulcerate, or mortification. Our author here refers to the different forms of primary venereal disease illustrating this tendency, as the Huntereian chancre, the sloughing phagedena, &c.

Sec. V. Treats of the causes of inflammation. In general terms, he says, these are stimulants which disorder the physiology of any part. They are of three classes—first, those which pertain to the body itself; second, those external to the body; and third, those which result from a combination of the other two.

The principal constitutional cause is disorder of the digestive organs, for the due consideration of which our author lauds Mr. Abernethy and M. Broussais. Mr. Hunter also,—who pronounced the stomach the centre of sympathy, comes in for his share of praise. Here he enters upon some general observations, in regard to the structure, physiological and pathological relations of the digestive mucous membranes, which it is not necessary for us to present to those who are acquainted with the physiological doctrine.

The digestive organs can influence any part of the body, by means of the sanguiferous, nervous or absorbent systems. In every inflamed part disorder is generally strongest in some one particular portion of the vital machinery, as the forming capillaries—when there is morbid growth; or the secreting vessels, and then is there deranged secretion. In common inflammation, disorder of the digestive organs produces a structural effect through the sanguineous system. Our author is so much of a humoralist as to believe that this is affected through the medium of the blood, rendered impure by imperfect digestion.
He seems aware of the difficulty of establishing this, and appeals to the opinions of Mr. Abernethy and Mr. James. Local inflammations of the skin from disorder of the gastric mucous membrane are of frequent occurrence, and are partly accounted for by similarity of structure; also those of the mucous membrane from primary disorder in the skin, however excited. A very common and important cause of such primary disorder, is some physical or chemical state of the atmosphere, generally relative to temperature or moisture, destroying the balance of circulation between the two membranes. Every such state, exercising such an influence, is a cause of inflammation in the mucous surfaces. It is remarkable, that heat confines its injurious influence to the mucous carpet of the stomach and small intestines, and cold to the large intestines.

Atmospheric physics can also, in the lungs, directly influence mucous surfaces; thus, cold damp air, or that loaded with electricity, may directly irritate the lungs, or wind-pipe. Atmospheric causes act also on other tissues, as those of the joints, &c. Our author dwells with emphasis on the existence of occasional atmospheric chemical impurities, as causes of disease—impure gases from confined habitations, &c. &c.

Other agents are aliments, or poisons, which directly influence the mucous membranes. The taking of food of bad quality, or in improper quantity, is a fruitful source of direct irritation of the membrane, and of an impure condition of the blood.

Our author considers that inflammation may arise from some alteration in the quality of the blood.

Over-exercise of any particular organ, is a fruitful source of inflammatory disorder.

The inflammations from constitutional causes are more rapid and violent than others, though they do not differ from those excited by foreign stimuli. The state of the constitution always exercises a wonderful influence over all cases of inflammation. He thinks that the ascription of this to "predisposition" or "weakness," is a mere multiplication of words, without adding to our knowledge. Constitutional weakness depends entirely on a local malady, or stimulus. However general the weakness may seem, there will be detected some disorder of the spinal cord, or of a principal nerve, or some other lurking malady. There can be no such thing as a general disease. For the preservation of health, all the parts of the system must work together harmoniously, and if one part is injured, it necessarily interrupts the operations of the rest of the vital machinery. In using the term weakness,
the author would always be understood to mean that state of
some organ which has not sufficient firmness to resist stimuli,
even a little beyond the ordinary degree, but fall into inflamma-
tion when subjected to it. Weakness of structure may be the
cause of inflammation, generally of a chronic character. The
changes produced in parts in consequence of age cause weak-
ness, which prepares the way for inflammation.

Undue strength also, or that state in which parts have their
powers working at their highest rate, is conducive to disease.
The blood of the parts is too rich and abundant.

A disordered nervous system is often a cause of inflammation,
but not so frequently. A morbid sensiveness, called irritability,
may exist, favoring the production of inflammation in any
part where nerves exist.

Some of the foreign causes of inflammation often inflame
parts indirectly; thus, cold applied to the feet inflames the syno-
vial membrane of the knee, the belly, the chest, &c. &c. Other
causes first inflame the part which they primarily impress, and
then transfer the inflammation to another part. Of this our au-
thor does not attempt an explanation.

PART II. The General Pathology and Treatment of Inflam-
matory Disorders.

SEC. I. Is devoted to the pathology of those common parts
which organize every membrane. These parts are the blood
and its vessels, the absorbents and the nerves. The blood and
vessels are chiefly concerned in inflammation. Equilibrium of
action becomes disturbed in inflammation. This is increase of
action in one power, with diminution in another, with change in
the quantity and quality of the blood, but without an immedi-
ate change of solid structure, which is generally the result of
chronic inflammation.

Our author expresses the somewhat unique opinion, that in the
first act of inflammation the blood is generally the part chiefly
disordered. Its affections may be primary or secondary; when
secondary, its disorder arises from sympathy with the solids, and
is of the same kind as that of the solids; when primary, the
same effect will follow inversely. The blood is expressive of
disease as well as the solids, and undergoes changes indicative
of its character; but the patient is not conscious of its change,
because there is no communication of feeling between the brain
and the blood. Unfortunately, but few of its symptoms can be
observed. Could its state and constitution be known at the time,
as it circulates, we should be furnished with a valuable source of knowledge in the treatment of inflammations. In his examination of the pathology of the blood, the author confines himself to those constituents of this fluid which are acknowledged to exist. The parts into which the blood spontaneously separates, (the erassamentum, serum and globules,) are themselves compound. Their chemical constitution is probably altered in inflammation. The fibrine may be in excess, or deficient, or altered in structure and constitution. This is true with regard to the serum. The physical and chemical state of the blood exerts a powerful influence on the character of the inflammation. In strong inflammation, fibrine is abundant; but in the languid and edematous, serum abounds. The author here describes the well known common traits of the blood in acute inflammation. These are decidedly present, when the inflammation is in one of the serous membranes, but often absent when the mucous are concerned; they occur most frequently in acute diseases.

In the disorganizing inflammations the blood is disordered, in scrofula being watery. It is venous in cancer; and in scurvy, remarkably altered in structure. The blood is manifestly diseased in poisonous inflammation.

The coagulum varies much in all kinds of inflammations, sometimes being firm, sometimes loose; sometimes in shreds. The state of the blood previous to disease modifies its appearance when this occurs. Generally it may be considered that the power of coagulation is increased by inflammation, and that there is a stronger disposition to separation of its parts. Even when blood is rapidly flowing from a vein, that in the vessel often shews a semi-transparent milky fluid floating on the surface, which proves, on coagulation, to be theuffy crust. He thinks that the appearance of a buffy coat is owing to the increased rapidity and power of coagulation. The effusion of serum from the capillaries in inflammation, is owing to a tendency in the constituents of the blood to separate, and to the disposition in the vessels to retain and use the fibrine. Fibrine is rarely effused, and still more so the red globules.

The character of the effusion depends on the degree and kind of inflammation. Serum is most readily effused, and especially in those parts whose secretions are similar to serum. The density of blood depends on the quantity of serum present.

Since the state of the blood changes in inflammation, as well as the action of the capillary vessels, we must of course have altered secretions.
The moving power of the blood in inflammation is altered, being generally increased in velocity and force. This he says is regulated by the quantity of fibrine, in which he seems to imagine his motive power to reside. Mr. R. found, on applying weights to a pulsating artery of an inflamed part, that the power of the pulsation was much greater than in a healthy vessel. — He says, too, that when an inflamed artery is wounded, it throws out blood with more than usual force, and this our own observation will abundantly confirm.

Increase of motion in the blood is not necessarily attendant upon inflammation; but any deviation from the ordinary force of circulation, whether less or greater, is sufficient to rank among the changes resulting from inflammation. There may be inflammation with a pulse preternaturally unfrequent and feeble. In this we perfectly concur, but the doctrine will scarcely be relished by those who believe that increased or diminished action constitute the very essence of inflammation. Mr. R. denies that the blood ever stagnates in inflammation, because if it did it must coagulate, so strong is the disposition to coagulation in inflamed blood. There is always a preternatural accumulation of blood in an inflamed part.

Mr. R. considers the capillary blood as intermediate in its character between arterial and venous. The first suffers in inflammation, and is most susceptible. The blood becoming venous as it passes into the veins, is an evidence of healthy action in the capillaries, but in inflammation it remains arterial in these vessels; the natural function of the capillaries, then, in relation to the blood, is suspended. A pale red color of inflamed blood indicates healthy inflammation. As the color deviates from red, the inflammation becomes more irregular and unmanageable. This is applicable, however, only to common inflammation. The conservative power of the blood is not impaired.

The cavities of the vessels in inflammation are generally enlarged. The capillary vessels are first and chiefly concerned in inflammation, then follow the veins, arteries, and heart.

The tunics of a capillary vessel, according to Mr. Rogerson, are three, ligamentous, muscular, and serous, and to them the blood is a natural stimulus, exciting their contractions by distension. The alternate motions of distension and contraction in inflammation are disordered, the blood stimulating the middle coat of the capillaries to dilate itself with a force which carries it beyond the middle state, and overcomes the resisting force of
the elastic coat. Upon this dogma we shall leave our readers to ruminate, as the weather at the present moment is far too hot to admit of our entering into a contest with the author in relation to it. Thank heaven, in medicine we may all be free thinkers, without incurring any other reproach than that of sometimes thinking erroneously.

Sec. II. Consists of general deductions from the influence of the vascular system in inflammations.—Susceptibility of inflammation varies at different periods of life. This is because the force, quantity and arterial richness of the blood is constantly diminishing from infancy to age, and because the capillary vessels also diminish in a corresponding degree. Inflammations are therefore more frequent in youth.

Those tissues which abound in capillaries, and circulate a great quantity of blood, are most obnoxious to inflammation.—Hence the skin is remarkably susceptible in infancy—the mucous membrane in youth and manhood: In old age, the blood becoming venous, we have inflammations less frequent, but oftener of a malignant and untractable character, such as cancer.

Distance from the heart influences the susceptibility of the same tissue, and the progress of inflammation in it. It is usually most vigorous and rapid near the heart, but is influenced by position, gravity, &c. In depending parts, it is slow, for obvious reasons.

The character of inflammations depends, in a degree, on the habits of the patient, since they influence the quantity and quality of the blood. A gorged state of the vascular system soon impairs the constitution of the blood.

In constitutions whose circulation is diminished in force and quantity, the blood is impoverished, and the tissues become attenuated from defective nutrition. Sometimes a state thus results favorable to serofulous inflammation, sometimes to scorbutic. The secreting textures are the most susceptible, especially the white, as the serous, forming dropies.

There may occur partial (local) increase or diminution of the circulation, a particular texture or organ being the seat of such change, while the general circulation is unchanged. There is at the same time a change in the state of the blood of the part such as we have described above, and corresponding to the character of the inflammation. There is difficulty in the treatment of such cases, unless the remedies can be addressed to the part, for, while the disease is wholly local, general means will only derange the general circulation.
Sec. III. Is devoted to the general pathology of inflamed structures.—“The incipient pathology of inflamed solids, is that state which simply arises from the inflamed blood and vessels.” First there is vascular engorgement; then effusion takes place; the white textures become opaque and thickened. If inflammation be resolved in its first stage, no traces of it will remain.—Textural swelling remains for an indefinite time. Textural changes are promptly removed, where the powers of the part are vigorous; but slowly where the reverse exists, as in ligaments, valves of the muscular tubes, &c. The consequences of inflammation will also depend on the present state of organization. When the organization is very weak, inflammation, which at another time would perhaps merely produce abscess, causes mortification.

Wherever there occurs textural change, there must result corresponding change of function, or even destruction of it, which last, when it occurs, is generally the result of chronic inflammation, leaving the forming vessels diseased, and causing often a substitution of parts, as when the heart is converted into a fatty structure. Secretions are always altered or suspended in an inflamed part, as in nephritis or hepatitis. The matter secreted resembles more or less that usually furnished, or some constituent of the blood; but in the disorganizing inflammations it is peculiar.

When a part exercising the power of motion is inflamed, this function also is disturbed. When a muscle is inflamed, it is either partially paralyzed, or it is affected with spasm. When the brain is affected, the phenomena of thought and passion are morbid.

“The power of sensibility,” says our author, “is, in all probability, inherent in structure; while the nerves are to be regarded, generally, to use the language of Hunter, as the chordæ internuncii, or messengers of sensation.” This we believe to be true philosophy, although by no means generally admitted. It is usually with peculiar pleasure that we meet with opinions in unison with such as we ourselves have adopted by similar reflections. We have long entertained the conviction, that too much physiological importance is generally ascribed to the nerves, nearly all vital phenomena being referred to them.—Though all vital correspondence between organs is through the nerves, and although the influences which excite organs are imparted by the nerves, still those organs possess, in their own texture, a vital property by which they respond to this influ-
ence. Each tissue, according to Mr. R. has its peculiar sensibility. This is modified in disease, and such deviation from the physiological state is usually irritable and painful. The character of the morbid sensation will depend on the structure of the part affected.

Sec. IV. Is devoted to the consideration of the local symptoms of inflammation. Symptoms are disordered functions; and it is not necessary that there should be a certain number or succession of them, to constitute inflammation. Our author animadverts upon the erroneous artificial system of pathologists in making inflammation to consist of a group of four symptoms, redness, swelling, heat, and pain. He says, that in every case, morbid phenomena are present, and often some of these particular symptoms are absent. These traits were taken from the most common and obvious of inflammations—but by no means the most important—that of the cellular tissue. Redness is of all least constant, and least to be depended upon. It is present in the acute inflammation of red-blooded parts; in chronic cases, rarely to any depth; in disorganizing inflammations rarely present, other colors prevailing. The more the color deviates from the arterial, the more unfavorable is the inflammation.—Some parts never redden, because of the minuteness of their vessels, and yet the blood undergoes the same changes as in other inflamed parts.

Swelling is almost constant, and depends on the nature of the texture. It occurs in a degree even in the more dense textures. In common inflammations it arises from the increased quantity of blood—from effusion, and generally the secretion of a fluid. In the disorganizing inflammations it results from the formation of a new structure, as in cancer.

Swelling, however, is not constant, for sometimes, in chronic cases, there is even diminution of volume, the absorbents being excited, or the forming vessels ceasing their action.

The sense of heat in an inflamed part, though the temperature is slightly raised, as shown by the thermometer, appears, from the experiments of Hunter, chiefly to arise from disordered sensation. The author alludes to the various theories relative to the production of animal heat, viz. Hunter’s, who supposed it to be generated in the stomach; Crawford’s, whose laboratory was the lungs; Pelletan’s, who rejected the oxygenized theory and substituted the carbonized—all of which he considers unsatisfactory. He says that in animal heat there is nothing so remarkably different from the heat of common matter and machines. There
is heat in all matter, and all matter has the power of resisting change and preserving its inherent heat. Inanimate machines produce heat by action, and the production of heat in the living system is analogous. All the operations of vital chemistry also generate heat. Every texture and organ thus produces heat. The heat derived from both these sources will necessarily be disordered in inflammation. It will be most disordered in acute and intense affections, varying however, according to the structure of the part affected. In the skin it is intense, while in the ligaments it is scarcely felt.

Pain is a frequent attendant upon all kinds of inflammation. Pain cannot be owing to the distension of sensitive parts by inflammation, because often there is severe pain where there is no distension, and distension with little pain. The sensibility resident in the texture, must stimulate the nerves to convey the peculiarities of pain to the brain. Nervous sensitive power, (by which we suppose our author means animal sensibility) is lessen when textural (organic) sensibility is increased by inflammation. The throbbing sensation of pain in an inflamed part, is owing to painful contraction of the arteries.

The kind of pain varies according to the texture affected. The degree is generally proportioned to the intensity of the inflammation; but not always so.

Pain is not an invariable concomitant of inflammation; the mucous membrane of the stomach, for instance, is sometimes acutely inflamed and yet there is no morbid sensation. This is often the case in those inflammations termed insidious, in which pain being absent, the patient "losing his monitor and the surgeon his guide," the disease progresses unseen, until made more apparent by some of its obvious effects.

Nor is heat necessarily present, for there is sometimes a sense of coldness, especially in chronic disorders, and in aged persons.

In addition to the above symptoms of local disorder, there are others, dependent on the altered properties of each part affected; a cartilage loses its elasticity; a ligament its tenacity; a muscle its action of contraction and dilatation. The physiological office of every organ is also impaired. If the lungs are concerned, respiration is impaired; if the heart—then the circulation, &c. &c.

Sec. V. General deductions from the influence of solid structures in inflammation. The remarks which occur under this head being for the most part obvious, it is unnecessary that we should analyse them.
Sec. VI. The constitutional symptoms, or the fevers of inflammation. No pathological state of any part can exist for any length of time without disturbing the constitution. Our author condemns the word sympathy as being a mere cloak of ignorance, and only another expression of the fact which it is used to explain. It certainly is a convenient word, however, to express that fact, and by it we avoid a good deal of circumlocution. If employed to express the vital intercourse which different parts of the system have with each other through the medium of the nerves, it certainly is a very convenient and appropriate term. We doubt whether any pathologist of the present day employs the term in the sense imputed to him by Mr. R. By the way, we think that our intelligent author takes too frequent occasion to assail those exploded dogmas which no one thinks of defending at the present time. Some which he assails with all the equipments of his logic have been "quietly inurned" these twenty years; but our author, "lest they rise again," is resolved; like the valiant knight in the play, to inflict one more stab; yet in truth, one might as well think of levying a modern army to make war upon Julius Caesar.

"Constitutional disturbance by sympathy does not differ in principle from the general derangement into which a common machine is thrown when any part of its machinery is injured." The human body is a delicate and complex machine, and when any of its constituent parts are injured, the whole must necessarily be disturbed in its operations in a degree proportioned to the extent of the local injury. The capillaries, small nerves, absorbents, &c. which are primarily concerned in local inflammation, are merely the continuous, minute ramifications of the arterial, nervous and absorbent system; hence their irritations will travel along the larger branches till they reach the heart, the brain, and the great absorbent trunks. These then reflect the disorder throughout all the ramifications of the vascular and nervous systems, and the general disturbance thus resulting is called fever. When any one system is at first concerned, such is its vital intercourse with the others that the pathological state must soon become general.

Whenever the fever becomes severe, the digestive organs never escape being involved, and often their disorder is so great that gastro-enteritis is the result, followed frequently by ulceration, thickening or softening. Parts locally inflamed generally thus influence the digestive organs through the nervous system. As soon as the digestive organs become deranged still further,
febrile disorder results. The functions of all this apparatus of organs become disturbed, and their morbid sensations are in turn felt by the brain and spinal marrow; and these again radiate the morbid influence through all the parts of the system over which they preside; hence those symptoms in fever commonly termed nervous. The vascular system is also re-acted upon by the disordered digestive organs, and thus is it injuriously influenced in two ways.

It is manifest then that the symptoms which characterise fevers must be numerous, various, and continually changing; hence the futility of nosological arrangements. If distinctions in fevers are to be made, however, our author would designate them by the system chiefly affected; as the gastric fever—where the stomach was particularly concerned; the nervous—when the nervous system particularly suffered. Nervous fevers mostly occur in nervous and delicate constitutions—most frequently in youth. Nervous constitutions bear ill the fever of inflammations.

When the vascular action predominates in fever, it may be termed vascular, (equivalent to inflammatory.) The extreme of this fever will occur in the plethoric constitution.

The constitutional symptoms of the fever of inflammation do not always correspond to the degree of the local changes, for when the fever is fully established, it reacts on the inflamed part; when, however, any important change is about to take place in the part, there is usually some constitutional prémision, thus there are the symptoms which indicate suppuration; those which foretell gangrene; and those which mark hectic. The general symptoms are also influenced by the texture and vital importance of the part affected. Those arising from an inflamed serous membrane differ from those caused by an inflamed mucous tissue. When a vital organ, as the heart, lungs, stomach, &c. is affected, the fever is violent, the pulse being quick and small, and the blood sify. In the joints, the fever will be less intense and more liable to be hectic. In parts of little importance, the pulse is strong and full, and the capillaries strongly injected. The physiological condition of the textures of the body, and especially those of the digestive organs, will modify the fever, and particular note should be taken of it before the performance of an important surgical operation.

The different varieties of inflammation have also their peculiar traits of fever; the fevers of common inflammation, of cancer, of erysipelas, of rheumatism, are all different. These differences, however, he regards as of very little importance in regard to
treatment, the pathology of the affected part being the principal object. Still the fever is not to be overlooked, for it often aggravates the local disorder, disturbing other parts of the body and creating other local inflammations. When the vascular system continues long in great disturbance, inflammations of other parts will almost certainly occur. Fevers arising from disorder of the digestive organs are liable to excite inflammations of the skin, mucous membranes, and brain.

The author now examines the symptoms and influence of the disordered systems more in detail. Every fever, he says, must have a local origin, and this cannot be too strongly insisted upon. He considers an idiopathic fever to be a perfect chimera. He condemns those authors by whom “groups of symptoms are strangely mixed up, or entirely separated from febrile pathology, as if the disorder was idiopathic.” A rigor is commonly the first febrile or constitutional symptom, and probably arises from the new change commencing in the disturbed parts, disordering the systems, chiefly the digestive, which is affected by nervous or sanguineous agency. “Of all the systems, the digestive, (and especially the stomach) exercises the most power in the productive of rigors.” Any foreign matter irritating the stomach may cause a rigor. Rigors sometimes occur at the close of fever when any important change is about to take place—also often in its progress, from a continuance of the local cause, or from changes taking place, or from the re-action of constitutional and local disorder, which he thinks will explain the periodicity of rigors in certain fevers. Rigors may be partial, as along the spine. Rigors are not always the antecedents of fever. Often the first phenomenon of disease is heat universally diffused over the skin. The circulation is often first disturbed, and congestion occurs in the head, stomach, intestines, kidneys or lungs. Sometimes the stomach is primarily concerned, a sense of sinking being felt at the pit of the stomach; and sickness, or vomiting and purging taking place. Or the nervous system may lead the train, causing slight disorder of the mind, delirium, wandering pain, disorder one of the nerves. In surgical operations, the digestive system often first participates in the local shock; the sanguineous may be involved either by loss of blood, or the production of congestions; or the nervous may be first affected, and then occur convulsions, or lock-jaw.

The rigor is followed by the hot fit, which in turn, is usually followed by perspiration, a natural consequence of the increased actions and re-actions. Rigors and heat often continue to alternate.
Rigors, heat and perspiration being in a degree a regular series of actions, an interruption of their regular succession is regarded as unfavorable.

In the febrile disturbance of the vascular system, the motion of the circulation is disordered, as indicated by the pulse. Frequency of pulsation is almost an invariable symptom; its force also is variable, generally increased, but sometimes the reverse. Other disordered states of pulsation also occur, indicated by the hard, the soft and the vibratory pulse.

There is also great disturbance in the equilibrium of the circulation. Sometimes the skin is suffused and engorged—sometimes the mucous membranes, while the former is pallid; sometimes, though rarely, both are engorged. Sometimes the lungs, the brain, or other noble organs are the seat of engorgement.

The time, during which the local determination of blood may continue in particular parts, varies. In the skin and mucous membranes, generally, it is brief; in the lungs, and some portions of the intestinal mucous membranes, it is often tedious, and becomes what is termed congestion, which often results in local inflammation, or effusion.

It is probable, that in fever the quantity of blood is altered.

The seat of the local disease materially influences the febrile circulation. In inflammation of the peritoneum, the pulse is quick, small and wiry, and the blood sisy; in that of the brain, it is oppressed; that of the bowels, full and hard, &c. &c.

The quality of the blood being greatly disordered, it necessarily results, that all the functions which depend on the blood are deranged, especially the secretions. Nutrition is but feebly performed. Tumors which are feebly nourished sometimes drop off; also healthy parts which are feebly nourished occasionally drop off, as the hair, cuticle, nails; and sometimes even more important parts.

The veins are very frequently congested in fevers, particularly toward a fatal close. It may occur in the large trunks, or large venous capillaries which pervade the external surface, as those of the areola of the eye, the lips, the fingers, the mouth.

There is a train of disorders caused by the disturbed state of the nervous system, such as disorder of the mind, of the senses, and of common sensation and motion.

The digestive system, and especially its principal organ, the stomach, exercises a powerful influence in fevers. The disordered state of the mucous membrane of the stomach destroys for a time its physiology; the appetite is lost, or depraved; thirst is
usually urgent; often depending merely on the parched state of the lips, mouth, and fauces. The secretions of the stomach are disordered like those of all other secreting organs. The muscular coat is often affected with spasms.

The intestines, liver and pancreas do not escape. Their secretions are sluggish, and the peristaltic action is generally torpid. Sometimes the secretions are profuse, vitiated and irritating, and then there is diarrhea. This disorder may pass into inflammation, and then dysentery follows; but the discharge of blood in fevers is not always the product of inflammation. Costiveness and purging often alternate. Sometimes the muscular tunic is affected, and colic results.

The mucous lining of the passages leading into the stomach is disordered; mouth parched, tongue coated, and taste vitiated. The furred tongue is produced by a vitiated state of its secretions, the fluid being converted into a furfuraceous lining. "A furred tongue, not only points out a disordered state of the gastric organs, but its various conditions even indicate what part of the alimentary canal is most disturbed," and are more expressive than the pulse. In mild cases, the coat is white and confined to the back part; in the more severe, it is general and thicker—dark in worse, and black in malignant cases. In protracted disease it is tremulous, being protruded with difficulty. The color varies according to the local cause; when the liver is concerned it is yellow; when a mucous membrane, the color is heightened, and its papilla prominent, or there is a red streak down the middle of the tongue, and a white coat on each side. The surface is also often glazed and very dry. In affections of the skin, there are often many spots free from white fur studded over its surface.

The absorbents are much disordered in fever, this generally consisting in inordinate action, and causing the absorption of the cellular tissue and fat, and the diminution of the bulk of organs. Sometimes they act partially, and some one organ will waste more than others.

Sec. VII. Is devoted to the treatment of inflammations and their fevers. Resolution is of course the most desirable termination. The favorable change begins in the capillaries, which advance most rapidly to a cure. The capillary actions and the capillary blood are first reduced to a healthy condition. Secretion and nutrition now improve, and swelling subsides. The nerves and the capillaries now begin to resume their healthy offices. Changes of structure, however, remain for a long time.
The restorative changes in the capillaries are extended to the larger vessels, and the circulation becomes in all respects regular. The nerves concerned being relieved, pain ceases, and the nervous system resumes its healthy offices. The digestive organs then return to their healthy condition.

"The local malady, then, should be the primary and principal object of all remedial measures." Fevers should be treated as disordered systems, always associated with some local disease; the febrile disorder, however, must not be neglected, as is the practice of some modern authors. The disorder of the systems, (nervous, vascular, &c.) though secondary, may be in a degree allayed by addressing remedies directly to them.

Whatever cause may have given rise to the inflammation is obviously to be first removed. Any irritating external agent operating upon the part is to be sought for and removed. If the cause exist in a morbid state of the digestive organs, remedies must be immediately addressed to them. Resolution is always desirable, and all remedies should tend to its attainment.

Those remedies which are directed to the systems should be such as act chiefly on the digestive system, to restore the physiology of the stomach, &c., and on the vascular, correcting the state of the blood and the vessels. The former are often the more effectual, but frequently the disease is too rapid for their slow agency, and a quicker impression must be made by the abstraction of blood. The digestive organs powerfully influence the absorbents, and hence, remedies acting on the former, will indirectly act on the altered structure—remove opacities, inductions, &c. &c. often with great rapidity. These organs have an equal control over the nervous system, and through it over the vascular.

Of the three membranes forming the digestive organs, the structure and functions of the mucous are most disordered in fevers,—next the muscular, and lastly the serous. In disorder of the mucous surface, the secretions are increased in quantity and of an irritating quality, lingering in the canal. The first object then is to effect their removal, and the second to correct the disorder which produces them. The agents by which these are accomplished, are purgative and alterative medicines.

Purgatives act by stimulating the mucous and muscular membranes, and possess distinct powers in evacuating different kinds of intestinal matter—one, solid feces; another, liquid secretions, a third, bile. They also exert different influences on the stomach; one acting as a cordial; another producing nausea, and a
third exciting its secretions. They also act variously on the nervous system. Those which stimulate the vascular system and irritate the nervous, should, in inflammations, be avoided.

The direct action of purgatives is to cause an accumulation of blood in the mucous membranes at the expense of the skin; this is salutary if it exceeds not a certain limit, but when it does, it causes inflammation of the mucous surfaces.

Purgatives, therefore, should be mild, and the most suitable are the saline, especially dissolved in the infusion of some mild vegetable cathartic. When the alvine discharges show a deficiency or depravity of the biliary secretion, mild mercurial preparations should be employed in small doses, repeated at intervals. These are useful also in exciting the absorbents.

Where the object is merely to unload the bowels, rhubarb, jalap, colocynth and aloes may be employed,—magnesia, where there is acidity. Enemata may be resorted to when the upper part of the mucous tract is irritable; or when there is torpidity of the muscular coat, or spasms.

Nothing can be more injurious than perpetually irritating the alimentary canal, with the excessive use of harsh cathartics.

Sometimes, but especially in chronic inflammations, there is diarrhœa at the commencement of disease. The membranes should then be stimulated, so as to check excessive secretion and action, and this is effected by astringents, opiates and cordials. In both these states of the mucous membranes, inflammation may be present, marked by epigastric swelling and tenderness;—then leeches should be resorted to. Thirst should be gratified with mild diluent drinks, a little tepid, and when agreeable, slightly acidulated.

Nothing can be more mischievous than the use of aliments which the stomach cannot digest; they continue to irritate the whole canal till they are evacuated, and even where partially digested, only furnish vitiated chyle. In violent inflammations, and incipient stages, it is proper to refrain entirely from every kind of food; but mild unirritating farinaceous aliments are admissible in protracted cases. In disorganizing inflammations, and old chronic cases, weak broths, delicate meats, &c. must be resorted to. Our author objects to nauseating medicines, and believes diaphoretics to be of doubtful efficacy. Vomiting he considers never justifiable.

The remedies which act directly on the vascular system are local and general bleedings. The great utility of blood-letting in inflammation, according to Mr. R. is owing, not to the diminution of
the quantity of blood, for the effect is not proportioned to it;—nor to the contraction of the vessels consequent upon bleeding, for pressure will unload them, and cause them to contract, but not dispel inflammation;—nor alone to the diminution of vascular action, for sometimes bleeding increases it, and yet relieves inflammation; but it is owing to "its altering the disordered structure of the blood," restoring its constitution and equilibrium of powers in the vascular system. That it does this, is manifest from the fact that it diminishes its power of coagulation and disposition to separation. It also improves the power of motion which resides in the blood. If bleeding be carried too far, the constitution of the blood is weakened, and its proportion of fibrine diminished.

When the quality of the blood has been improved by bleeding, it necessarily furnishes more wholesome materials for secretion in the digestive organs, and thus materially contributes to the restoration of their physiological state. Thus the lancet is sometimes the best of purgatives. This restoration of the gastric secreting functions, will of course assist in correcting all the other systems. The healthy exercise of all the secretions is re-established,—cutaneous perspiration, pulmonary exhalation, &c. &c.

Bleeding is to be regulated by the nature and relative importance of the inflamed structure; by the duration of the inflammation; the age and habits of the patient; the quantity of blood, &c. The inflammations of certain tissues demand more bleeding than those of others, as does a serous membrane more than a mucous, &c. When a vital organ is concerned, blood is to be taken freely. Mr. R. gives the common precepts in regard to the mode of its abstraction. He considers fainting from loss of blood as one of the safest criteria that the depletion is felt by the constitution; he therefore places the patient in the erect or sitting posture, that this effect may be produced without the too copious abstraction of blood. Bleeding to faintness may require to be several times repeated in impetuous cases, and these repetitions are to be determined by the recurrence of the circumstances first indicating depletion. If the blood be cupped, or buffed, repetition is generally necessary.

In the treatment of inflammations the preservations of a pure atmosphere around the sick is obviously necessary, from the fact that impure air has been laid down as one of their common causes. Extremes of heat and cold are also causes, and hence
a medium temperature is manifestly indicated. An atmosphere
too dry, or too moist, is also injurious.

Baths are salutary by calling the load of fluids from the mu-
cous membranes to the surface, and are therefore useful where
this kind of revulsion is desirable, provided the patient can be
placed in it without injury, and it be so managed that re-action
is not suffered to occur. Partial baths (fomentations, &c.) are
often of indispensable importance to divert the fluids from some
engorged organ to another.

When heat on the surface is preternatural, cold baths, or effu-
sions are preferable; but the evaporation which they cause must
be kept up, lest the transient existence of it provoke re-action
and aggravate the mischief.

"The local remedies or stimuli, directly applied to the inflam-
ed structure, are topical bleeding and evaporating, or soothing
applications." The object of local remedies is the restoration
of the natural state in the inflamed part, and hence a diffusion of
it from this centre. The most effectual is local bleeding, by
which disease is assailed in the very centre, from which it is
emanating to affect the general system. Local bleeding acts
chiefly on the capillaries, and we have seen that in them inflam-
mations begin, and then induce fever. If the physiology of
the part is early restored, the series of morbid phenomena is at
once cut short. Local bleeding from the integuments of the
belly exercises more control over inflammations of the gastric
mucous membranes than the gastric serous. Local bleeding is
only adjuvant to general, in severe cases, but is often of itself
sufficient in feeble and protracted inflammations. Local bleed-
ing alters the quantity and quality of the blood in the inflamed
part, as general bleeding does in the system.

For the purposes of local bleeding, leeches are generally pre-
ferrable to other means, but cups may be employed with advan-
tage over deep parts affected with chronic inflammations. They
not only abstract blood, but cause its afflux to the cutaneous ca-
pillaries. Our author, we think, undervalues depletion by inci-
sions, especially in the phlegmonoid erysipelas, or, as he terms
it, erysipelas of the cellular tissue. The beneficial effects of
their employment are abundantly established. By all the means
employed, the local bleeding is to be affected as near to the seat
of disease as possible.

The local employment of warm and cold applications, is for
the purpose of soothing the part by regulating its temperature.
Sometimes the one; sometimes the other will be most grateful, nor
Rogerson on Inflammations. 197

is there any certain criterion but experiment. Our aim, generally, should be to restore the natural standard of heat.

The employment of blisters and other severe counter irritants, on parts intensely inflamed, our author condemns, because they cannot subvert the diseased action. He thinks them more justifiable where the inflammation is more languid and chronic, for then they may substitute a more acute, but more manageable disease. These remedies are more properly applied to healthy parts in the vicinity of those inflamed, for they then transfer a part of the disease to organs more capable of enduring it. They are never to be used, but as the sequents of other means.

We have now completed a laborious analysis of the two first parts of our author's work, and have endeavored to give a faithful expose of his doctrines. The third and last part is devoted to the consideration of the "consequences of inflammation." This, as treated by Mr. R. is a department not ordinarily embraced in works purporting to treat of "inflammation," and therefore, we may with propriety omit its analysis till some future period. N. R. S.
BIBLIOGRAPHICAL NOTICES.


Researches on Transcendental and Pathological Anatomy, &c. by M. SERRES, Member of the Institute of France, &c. pp. 315. with 20 plates.

The laws which regulate the formation and successive development of the different structures of the organism, both in the regular and in the abnormal condition, have been studied by modern observers with the utmost care and attention, and among the most distinguished cultivators of this branch of science is certainly to be ranked the author of the work before us. His varied researches, in this department of knowledge have added many important facts to the stock it already possessed, and have unfolded and illustrated some of its most interesting principles. In the present treatise, he has presented a minute and detailed account of several cases of double monstrosity, and has prefixed to the history of their anatomical structure, a comprehensive survey of the general principles of embryogeny.

The case which forms more particularly the subject of his observations in this treatise, is that of the well known double child, Ritta-Christina. This infant, which was single below, having only two inferior extremities, and double above, having two heads and four arms, was born at Sassari, in Sardinia, in March 1829, and was taken to France, where it became an object of public curiosity. It lived eight months and eleven days, and died of a disease, produced as it was supposed from want of proper care and attention. The child belonged to the female sex. The two beings who were thus closely united, and in some parts indeed, almost completely identified with each other, were yet distinctly endowed with separate consciousness. Their countenances differed greatly from each other; this circumstance is at once observed in the admirable plates accompanying the work. The head to which the name of Ritta was given, had a countenance indicative of melancholy and suffering, the other which was called Christina presented the gay and lively appearance which is common in infants. The cause of this difference is to be found in the fact that the organization of Christina was much more perfect than that of her sister, and her health was consequently better; she took the breast more frequently. As the two children were united at the upper part of the chest, and their thoracic cavities were thus thrown into one, the act of respiration was performed by each at the same time; the muscles of one half of this large cavity belong-

* M. Serres refers to four cases on record, of children that had lived for some time after birth, although united into one at the trunk: 1. That described by Buchanan, and which lived at the court of James III. of Scotland, to the age of 28;—2. One observed by Martin Martinez at Madrid, in 1783;—3. The child seen by Siegert, and which resembled Ritta-Christina; one of the infants took food, the other did not; they often fought together; (the same want of harmony existed in the case described by Buchanan); one survived the other four days;—4. A case of the kind is spoken of by St. Augustine, Civit. Dei, lib. xi. cap. 4.
Serres' *Transcendental Anatomy.* 199

...to one child; those of the other half belonging to the other. Another reason why they necessarily breathed together, is that one lung of each child lay on that side of the thoracic cavity which belonged to its neighbour; this most singular arrangement can scarcely be well understood without an inspection of the plates. The concurrence of action in the respiratory muscles led to the simultaneous contraction of the two hearts, and accordingly, the pulses of the two children were always found to be isochronous until the functions of respiration and circulation were disturbed by the disease which produced death. The children also went to sleep, and awoke at the same time. The author observes.

"It was indispensable to their health that sleeping and waking should take place at the same time; for it is known that during sleep, respiration becomes a little slower, and if the respiration of one child was rendered slower, this circumstance had the effect of embarrassing that of the other. The breathing of the child which slept was calm, whilst that of the one which remained awake became, after some moments disturbed; this disturbance was manifested by the elevation of its ribs, by an unequal rising of the abdomen, and a lateral undulation of the intestinal mass. The respiration of Ritta-Christina, under these circumstances, resembled that of patients labouring under induration of the lung, or copious effusion into the pleura of one side. The child that was awake was uneasy; but this state of things did not continue long, for sleep at length overcame them both, or else, the uneasiness of the one roused the other." p. 181.

The abdominal muscles of the two sides, although receiving nerves from different nervous centres, acted together; this consentaneous action became necessary as there was but one bladder and one rectum common to the two children; it was also observed in coughing. When Ritta coughed, her sister "was attentive, and took part in it by the contraction of her abdomen, and doubtless also of her portion of the diaphragm." With regard to the inferior extremities, of which there were but two, the right belonged to Ritta, the left to Christina. This was readily ascertained by tickling one foot, which affected only the individual to which it belonged; if the children were asleep, and one foot was disturbed, its owner always awoke; if they were both touched, both children awoke at the same moment.

The disease which put an end to their associated existence, was confined to one of the individuals. Ritta, who was more delicate than Christina, was attacked with acute bronchitis, attended with cough and difficulty of breathing. Thé skin became hot, and now the pulses of the two children were no longer isochronous; that of Ritta was 190 in a minute, whilst that of Christina was only 102 or 103. The evening before she died, Ritta refused the breast; there was extreme dyspnoë; she was pale, the face and neck covered with a cold sweat, general sensibility gone, the leg and foot œdematous. Christina still appeared tolerably comfortable, although her respiration was hurried. The death of Ritta was preceded by convulsions; Christina survived only a few moments. The substance of the lungs of Ritta was found red, the bronchial mucous membrane was red and slightly softened.

It would be out of place to give here a minute account of the internal structure of these children, although the subject is one of great interest and importance in the science of organization. The philosophical student of nature will find himself fully repaid for his trouble in consulting the clear and satisfactory description given by M. Serres of this remarkable anomaly in nature's works. Few men could have brought to the investigation a mind more com-
pletely matured by labours in the same field, and few could have prosecuted it with more patience and zeal. While we refer to the work itself for details, it may be proper at present briefly to take notice of one or two of the anatomical irregularities which the case presented.

On opening the chest, the two hearts, perfectly distinct from each other, were found enclosed in one pericardium. The heart which occupied the left side had its vessels arranged in the natural order; that on the right, belonging to Ritta (who as we have mentioned, was during life more languid and weak than the other child) presented some anomalies. There were belonging to this heart two superior vena cavae, one opening into the right, the other into the left auricle; the septum of the auricles was moreover perforated, with three apertures without valves, and the ductus arteriosus was large and open, so that there was, in this child, as complete a mixture of the arterial and venous blood as during fetal life. This conformation of the heart and vessels explained the bluish tinge observed in the skin of this child, as well as its comparative weakness. It is moreover worthy of notice that this child, labouring under such great and serious defects of structure, derived decided advantages from being yoked with another more perfectly organized. For as their bodies were brought together at the lower part of the trunk, the branches of each aorta were necessarily approximated. The superior mesenteric arteries united together, and from this point down to the bottom of the pelvis, there was constant and free communication between the two arterial systems. Hence the well elaborated blood of Christina was made conduits in some degree to the welfare of her less fortunate sister.

Another irregularity existed in the distribution of the branches arising from the arch of the aorta. Those belonging to Christina were regular; in Ritta, on the contrary, the arch was higher than common, and the right carotid and subclavian took their origins from the arch separately. On the subject of these anomalies, a remark is made by M. Szara which deserves attention. He thinks he has discovered that a greater elevation of the arch than is usual stands in the relation of an invariable antecedent to the kind of irregularity just described; that for example, if the arch rises a few lines above its common level, the right subclavian separates from the carotid, and all the four trunks take their origin immediately from the aorta. If it rises half an inch or an inch, the vertebrals of one side or of both, or the inferior thyroid arteries spring from the aorta. If, on the other hand, the arch is lower than common, the left carotid arises from the art. innominate, the aorta sending off only two trunks. So far as we have yet been able to examine, the doctrine has applied correctly, but whether it holds universally, further observation must determine.

Each child had its own stomach and intestinal tube distinct from that of its fellow until about the commencement of the ileum, where both canals coalesced nearly on the median line, and from this point to the anus, there was but a single canal, constituted in all respects like that of a single child. The absorptive vessels arising from this common intestine were divided about equally between the two children. Here is another circumstance which enabled Ritta, who took comparatively little nourishment, to profit by the greater health and strength of her sister, for the nutritive elements elaborated in the digestive canal of the latter, being taken up by the absorbents of this common intestine, were conveyed partly into the vessels of the former.

Another anatomical fact is curious; each child had only one kidney, which sent an ureter to the single bladder, and had its renal capsule above it, but
although in each, one kidney was wanting, yet the corresponding renal capsule was present, and in its proper place.

Among the doctrines and principles brought forward in the first part of the work, on the subject of the formation and development of the organs, one of the most important is that which attempts to account for the irregularities in the position of the viscera, in cases similar to that of Ritta-Christina. In these children, for example, we have stated that the heart and great vessels of Christina were arranged regularly, whilst those of Ritta were transposed, the aortic ventricle being to the right, the pulmonary ventricle to the left, with corresponding displacement of all the great vessels. Moreover, all the viscera of the abdomen were transposed in like manner, the spleen being situated in the right hypochondrium. &c. On the other hand, all the visceral organs of Christina occupied their accustomed place. Now some of the writers on teratology, (as the science of monstrosities has been termed by M. Geoffroy-Saint-Hilaire, the son,) have been led to consider the liver as the organ which regulates the position of the other central viscera. Thus when two fetuses are so united as to have a common umbilicus, the umbilical veins passing to each liver being near together, the two livers are approximated, and hence the principle that "all double monsters have their livers united together" (Serres.)

This junction of the hepatic organs may take place in several ways. Let us suppose the two children placed side by side before us, their livers united by the great (right) lobes being brought together, as was the case in Ritta-Christina. The child on our right hand (Christina) had its liver in the right hypochondrium, its proper place; the ascending vena cava passing up as usual to the pulmonary auricle, which with its ventricle was placed on the right side of the aortic auricle and ventricle; the vessels were arranged as usual. All was here regular and natural. On the contrary, in the child to our left hand (Ritta), the liver being placed with its great lobe in the left-hypochondrium, the spleen was therefore found in the right, the stomach between them, the duodenum and other abdominal viscera completely transposed. This position of the liver influenced the situation of the ascending cava; instead of being on the right side of the child's spine, it necessarily ascended on the left, and the auricle into which it emptied was therefore on the left of the chest; thus the transposition of the heart followed as a consequence, and that of the lungs was a further and necessary result.

If the two hepatic organs coalesce at their smaller (left) lobes, this position will in like manner have an influence on the situation of the heart and vessels, and give rise to various irregularities, as for example, the two aortas will be united at some part of the arch. Another way in which the livers may be joined, is where the great lobe of one is brought into contact with the small lobe of the other. A double fetus possessing this conformation is described and delineated by Serres. These facts which we have condensed from various parts of the work before us, will be placed in a clearer light by the following observations:

"The heart is not an organ existing by itself, and independent of the rest of the organization. It is not, as has been so long believed, the primum vivens. Its existence is subordinate to that of the liver; every monster without a heart is as necessarily deprived of an hepatic organ, as of lungs and head. Now, as the liver is developed under the influence of the umbilical vein, it follows that the want of this vein occasions the want of the liver, the absence of the latter leads to the absence of the heart, which in turn causes the want of lungs and head." p. 163. Again:
"In the first periods of fetal existence, the heart is not contained in the chest, nor the intestinal canal in the abdomen. The latter is situated in the umbilical cord, and the former is found in front of the neck. The liver, proportionally of immense size occupies both the abdomen and the chest. In proportion as the embryo is developed, the heart first, and then the intestines take up their abode in the cavities destined to receive them, but their change of situation cannot take place until room is furnished by a diminution in the size of the liver.—At first, and until the end of the fourth month, this reduction of size is effected equally throughout the whole from the fifth to the sixth month, the left lobe diminishing in volume, the right retaining its size, &c. p.110.

The author goes on to show that the alteration in the form and position of the liver, leads to corresponding changes in the location of the heart, as well as of all the organs in the abdomen.

We have now said enough to enable the reader to form an idea of the character of this work; besides the numerous and valuable facts with which it abounds, the learned and talented author has enriched it with luminous and profound views on the subject of the formation and evolution of the different organs, and on the relations which these bear to each other. In a section on pathological anatomy, he has ingeniously shown that many of the changes which the different tissues undergo in a state of disease, are analogous to normal states which they have respectively passed through in the various periods of their development. To conclude, if the work has a fault, it is that of being drawn out in some parts to a tedious length, beyond what the interest and importance of the subjects would justify. C. J.


On the 7th of February, 1832, the Medical Society of the state of New York, while in session in Albany, resolved to publish its transactions in a permanent form. The publication is destined to embrace successful prize dissertations, addresses made from year to year by the President, the medical topographical reports, made by the respective County Medical Societies, proceedings of the Society, &c. &c.

The committee charged with the execution of this plan have published the volume before us. It is very creditable to the professional zeal of the New York Medical Society.

The initial article of part one, is a prize dissertation on delirium tremens, by James Conquest Cross, M. D. of Lexington, Kentucky.

After treating on the literary history, name, etiology, and general character of the disease, Dr. Cross considers its varieties. He enumerates no less than four, viz:—1. The Sthenic; which consists in vascular irritation, or a condition, which doubtless predisposes to, and frequently terminates in, inflammation. 2. The Hypersthenic; this consists in inflammation. 3. The Asthenic; consisting in nervous irritation. 4. The Bilious; which consists in the supervision of delirium tremens upon bilious fever. Dr. C. does not relish the praise which journalists have bestowed on the essay of Dr. Coates, on delirium tremens. He thinks Dr. Coates has not fairly represented the disease. The remarks of this gentleman, that pain has never been observed by him in delirium tremens, either in the head, or in any other part of the body; that
increased heat, like pain, has never occurred in the cases under his observation, unless where it already existed, as the product of a previously existing malady; and that the pulse, according to his observations, is generally weak, are considered by Dr. Cross so unfaithful an account of delirium tremens, as to "betray a manifest and reprehensible unwillingness to admit, as attributes of this disease, any of those symptoms that denote the existence of sthenic or hypersthenic action." Dr. Cross has here levelled six pages of criticism at Dr. Coates' essay. He admits it possesses intrinsic excellence, but, "it unfortunately happens, that his views, and those of that very respectable physician, (Dr. Coates,) wage against each other a war of mutual extermination!" Each of these authors will find in the other a formidable combatant, and we hope their discussion will more fully elucidate the disease. Dr. Cross next treats of the prognosis, diagnosis, and necroscopic reports. Twenty-six pages are then devoted to a discussion on the proximate cause of delirium tremens. This, he attempts to demonstrate, consists originally either in vascular irritation, actual inflammation, or nervous irritation of the stomach, with immediate sympathetic vascular irritation, actual inflammation, or nervous irritation of the liver, and, subsequently, of the brain.

Treatment of Delirium Tremens.—On the use of the lancet, Dr. Cross says—the necessity for either general or local blood-letting does not frequently occur in sthenic delirium tremens. In hypersthenic delirium tremens, the indication is much plainer, and the propriety of the general detraction of blood is frequently imperious and necessary. The following remarks of Dr. Coates, when applied to sthenic delirium tremens, meet with the author's fullest approbation. "My own experience leads me distinctly to say, that the lancet does not appear to have the least discoverable effect, positive or negative, upon the delirium, and that it actually does harm to the patient, by diminishing his strength, an item highly necessary to the cure." Dr. Cross has never ventured on the use of the lancet in bilious delirium tremens; he has occasionally detressed blood locally, not however without its propriety being clearly indicated.

Of Emetics.—In sthenic delirium tremens, it will be rarely necessary to use emetics. They should be wholly proscribed in the hypersthenic. It is in the sthenic and bilious varieties that our emetics are strongly indicated and particularly useful.

Cathartics.—No variety of delirium tremens has ever deterred the author from using cathartics; although they are beneficial, they are far from being so to an equal extent, in every species. He prefers calomel, aloe, and rhubarb.

Opium.—Twenty-five pages are given to a consideration of this celebrated remedy. In sthenic delirium tremens, after the bowels have been freely opened and the liver stimulated to the production of a copious discharge of bile, by the action of a dose of calomel, aloe and rhubarb, if the pulse should be soft and compressible, the author commences the exhibition of calomel and opium conjoined. Twenty grains of the former and three of the latter is his ordinary dose at the commencement. In three hours the opium alone is repeated. and in three hours more the same quantity of calomel and opium. In two or three hours after the exhibition of the last dose, fifteen grains of aloe, with the same quantity of rhubarb are given. This simple plan has never failed but in one single instance. In hypersthenic d. tremens, before using opium, the lancet and cathartics should be employed until the pulse becomes soft and compressible. Two or three days will be required for this preliminary treatment in a majority of cases. It will moderate the primitive inflammation of
the stomach, and the secondary inflammation of the brain, so as to enable the opium and calomel to act efficiently. In this variety, the author rarely commences with less than four grains of opium, and half a drachm of calomel.

In asthenic d. tremens the author purges previous to the administration of opium. If a suitable dose of calomel, aloes and rhubarb does not operate, he recommends one drop of croton oil every two hours. In this variety, as the irritation is exclusively nervous in its character, the necessity of adding calomel is not so imperious. Three grains of opium every three hours, are recommended, by the author, after the preliminary treatment. In the early stage of bilious d. tremens, the author purges as before with calomel, aloes and rhubarb. On the pulse becoming soft and compressible, he uses the following prescription, to excite the liver, to extinguish nervous irritation, and to support the strength of the system, viz:

Calomel, gr. v.
Syrup of Morphone, 5 li.

This dose is given, according to circumstances, every three, four, or five hours.

Dr. Cross next makes remarks on camphor, henbane, atropa belladona, tela araneae, hops, blisters, cold affusions, pediluvia, ardent spirits and moral treatment. In the hyperasthenic variety, he has seen a blister on the epigastrium, greatly diminish cerebral determination and excitement. The precordial oppression in the asthenic and bilious varieties, receive signal relief from blisters, used as auxiliaries to emetics and cathartics. Respecting ardent spirits, Dr. C. says; “It should enter as a precept into the science of medical ethics, that ardent spirits should never be administered as a remediate agent in the treatment of any disease, unless it is imperiously required by emergencies, and in circumstances too, where no substitute can be employed of great efficiency.” He deprecates the use of this remedy in any variety of delirium tremens, in strong terms.

In the adynamic stage of this disease, Dr. C. has used with most advantage, the subcarbonate of ammonia, sulphate of quinine, sulphuric ether, assafetida and opium. The remainder of Dr. C.’s dissertation contains cases.

Artic le II. This is an address on Puerperal Fever, delivered before the Medical Society, by Jonathan Eights, M. D. of Albany, its president, (1832.) Dr. E. regards puerperal fever as a pure inflammatory affection in its original state. He thinks it doubtful whether the disease ever appears as an epidemic; where it seems to assume this character, it is under the influence of some other prevailing disease.

Admitting the disease to be inflammatory, Dr. E. seeks for “its location or primary seat.” He determines it is in the uterus, and that the contiguous parts become affected from this source. His argument is drawn from post-mortem examinations made by order of government, in the lying-in institution in Vienna. The result of this inquiry was, that almost in every case examined after death, there were evident marks that the primary disease was in the uterus.

“From the result of the above investigations,” says Dr. E. “we may come to the conclusion, that when the contents of the gravid uterus have been expelled in parturition, the orifices of the uterine veins, where the placenta had been attached, are left open, and most probably a communication is indirectly formed between the venous system and the atmospheric air: such a condition of the uterine veins, in consequence of the separation of the placenta, must be fa-
Transactions of the New York State Medical Society. 205

verable to the production of inflammation, which, once excited, is seldom limited to the orifices of the vessels, but extends, with more or less rapidity, along the continuous membranes of the veins of the uterus, until a general affection is produced. The muscular substance of the uterus also becomes affected from this local source; this is communicated to the peritoneal covering, and the usual symptoms of puerperal fever will ensue."

The following remarks of Dr. E. are important and judicious.

"There is a disease, however, not unfrequently met with in the parturient state, which, from its symptoms, so closely resembles puerperal fever, as often to deceive a critical observer. It comes on a few days after delivery, with diffused pain and tenderness over the whole abdomen, and with a pulse somewhat accelerated. I have never observed it unless after the exhibition of a cathartic, acting too freely, at other times not sufficiently, producing severe gripings, and an irritable state of the bowels. The usual remedies for inflammation, viz. bleeding, purging, &c. do much injury, and if persisted in will prove fatal to the patient. Instances are on record of several who have died from active depletion, and upon examination, not a vestige of inflammation has been discovered, either in the uterus or peritoneum, and only a few ounces of colorless fluid have been found in the cavity of the abdomen. It is most frequent among women who are of delicate health and sensitive nerves.

"This attack, besides the operation of a cathartic, may originate from severe and protracted after-pains passing into a permanent state, and, not unfrequently, no evident cause can be assigned.

"The pulse, although somewhat quickened, is soft and feeble, and often perfectly natural; the skin remains cool, and the tongue clean, and no tumefaction or enlargement of the abdomen is discovered. These cases are not of themselves dangerous, provided the nature of them be not mistaken, nor improper remedies employed. The compound powder of ipecacuanha, warm fomentations, emollient injections, frictions over the abdomen, with anodyne liniment, in every instance relieve it."

The cases alluded to here, are analogous to those referred to by Marshall Hall, in the section on irritation, in his "researches &c. on the loss of blood. Dr. E.'s remarks on the treatment of puerperal fever, refer to blood-letting, cathartics, fomentations, blisters, diaphoretics, calomel, oil of turpentine and emetics; the two last he condemns.

ARTICLE III. Is a Medical Topographical Account of the County of Kings, in the State of New York; by John B. Zabriskie, Nelson A. Garrison, and John C. Fanning, committee.

ARTICLE IV. Requisitions for graduation in the various Medical Colleges; and requisitions for license to practice physic and surgery, in the various States and Territories of the Union. This is an interesting article.

PART II. ARTICLE V. Supplement to the last article.

ARTICLE VI. Is an annual address on Asiatic Cholera, by Thomas Spencer, M. D. President of the Society, (1832.) The following recapitulation exhibits Dr. Spencer's views on the pathology of the several stages of cholera:—

First State.—1. The epidemic influence being thrown upon the exhalent tissues of the small intestines, renders it highly susceptible to the action of irritants, so that the imperfectly digested food or mild laxatives often excite profuse evacuations, and there is thus produced a disposition to violent disease from the common exciting causes of diarrhoea.
2. The stomach being weakened in its function, digestion is imperfectly performed, and at times almost suspended.

3. The liver responding to the stomach from its habitual sympathetic relations with that organ in health, falls into a state of torpor, and bile is no longer secreted.

Second Stage.—1. The disease essentially consists in this stage, in a determination of fluids to the inner surface of the small intestines, diverting the respiratory, perspiratory and urinous discharges, with their neutral salts, from their usual channels; and discharging them through the intestinal exhalents, rapidly emptying the blood vessels of their contents, and changing the relative proportions of the remnant of circulating fluids.

2. That the failure of the functions of the heart, lungs, capillary circulation, and various secretions, results from direct depletion, depriving those organs of their accustomed stimulus.

3. The absorbent system is rapidly taking up the adipose and waste parts of the body, to supply the failing resources of the heart, and thus results the rapid emaciation.

4. The spasms of the voluntary muscles, and those drawn into contractions in the act of vomiting, by compressing the intestinal exhalents, tend to arrest the discharges; and by aiding the return of the venous circulation, stimulate the heart to redoubled exertion, giving a centrifugal direction to the circulation, thereby making a metastasis of the exhalation from the inner surface of the bowels to the skin.

5. That a striking analogy exists between this disease and hemorrhage, differing only in its effects upon the constitution, from the circumstance of its changing the relative proportions of the ingredients of the blood.

Third Stage.—1. Collapse consists in direct debility and failure of the functions of life, caused by the sudden loss of the stimulus of distention of the heart and blood vessels, which do not readily contract down upon their contents.

2. The qualities of the blood are changed, from the previous discharge of some of its elements, while the others are retained.

Fourth Stage.—This stage consists essentially in fever of a low type, to which is often added local disease.

Article VII. Is a Medical Topographical account of the County of Saratoga, N. Y. by Dr. Elijah Porter.

Article VIII. Is a report on cholera made to his Excellency Governor Throop, August, 1832; by Lewis C. Beck, M. D. An interesting part of this report, is on the geographical march and mode of extension of the disease on this continent.

J. F.

Art. XII. An Essay on the Structure and Functions of the Skin with observations on the Agency of Atmospheric vicissitudes through the medium of the Skin in the production of affections of the Lungs, Liver, Stomach, Bowels, &c. By Wm. Wood. M. D. and Member of the Royal College of Surgeons of London, &c. 8vo. pp. 172—1832.

There can be no doubt, that of the various systems entering into the composition of the human organism, none can claim more importance in a physiological and pathological point of view, than that selected by our author as the
subject of his essay. Constituting the entire external covering of the body, it sustains the attack of all hurtful agents from without; and being allied in its anatomical structure to the mucous tissues lining the hollow viscera, it speedily translates these impressions and thus throws the onus of the pathological state upon them; establishing the first link in the chain of morbid phenomena. Our author is engaged in the first part of this work with the detail of such anatomical facts in relation to the skin as are generally received by anatomists; and although there can be no claim to originality in this department yet as a summary of facts carefully selected it may be perused with advantage by every member of our profession. The second chapter is devoted to the functions of the skin, which are treated of, under secretion, absorption, solid products of the skin and sense of touch. Independently of the follicular lubrication, there is a copious secretion from the skin, poured out by the minute capillary terminations of the arterial vessels; termed, when abundant in quantity perspiration: but when it is secreted in smaller portions or is rapidly conducted away by the atmosphere, insensible perspiration. The accumulation of this fluid upon the surface constituting sweating, is not always owing to increased activity of the arterial vessels; but is dependent in a degree upon the state of the atmosphere: for instance, the activity of the skin may be increased and if the atmosphere is dry and consequently fitted for rapid absorption, the fluid would be taken up, as it is secreted. On the other hand the secreting power may be at its usual rate and the atmosphere humid, not qualified to absorb and conduct away the secretion as it is formed, will allow it to accumulate and afford us the phenomena usually attendant upon activity of the secerent vessels in the opposite state of the atmosphere.

Mr. Wood instituted a number of experiments to ascertain the amount of secretion furnished by the skin in its healthy condition. By placing the hand and wrist in a glass jar and carefully securing it by attaching a bladder to its margin and closely adjusting it to the wrist, it was found that during the space of an hour the average amount was 28.53 grains and estimating this portion of the surface, to be to the whole as 1 to 32, the amount of secretion from the whole skin for one hour would be 1.88 on. and in 24 hours 45.12 on. or near 4 lb. troy.

Under the head of absorption our author reviews the arguments and facts for and against the doctrine of absorption by the cutaneous system. After balancing the experiments and facts presented by the advocates of cutaneous absorption against those urged by their opponents he is compelled to conclude that this power is in an eminent degree, possessed by the skin.

This view of the subject we are disposed to believe is in conformity with the anatomical structure of the organ, since the indefatigable investigations of Laubh have demonstrated lymphatic vessels to exist in great number and of large size in its texture. The solid products of the skin consist in the production of the outward layer of the integument; which is formed by the concretion of a semi-fluid viscid substance poured out from the external layer of the true skin and described by Malpighi as the corpus mucosum. The fourth and last function of the skin is stated to be the sense of touch, a power not exclusively resident in the cutaneous system but distributed to every part of the body which is endowed with nerves from the posterior portion of the medulla spinalis. The third section of our essay is employed with the anatomical description of the corpus mucosum; its influence over the color of the individual and its importance as one of the physiological characteristics of the varieties of the human race.
The remainder of the work develops the agency of this texture in the production of disease, and when we consider its extensive connections with the mucous membranes, its active emulent powers, its exposure to the vicissitudes of life we cannot but admit its extensive agency in establishing morbid action. We consider this little monograph as calculated to attract the attention of the profession to an analytical investigation of the progress of diseased action; for by no method can we arrive at correct and satisfactory conclusions of the nature and extent of the existing disease, but by ascertaining the organ which first receives the morbid impression, and following each stage in the progress and development of disease in neighbouring viscera or in those of similar organization. This method alone will enable us to adopt a judicious remedial system, or exhibit such prophylactic cautions as may avert many of the most painful and destructive maladies incident to human life. A. L. W.

Art. XIII. Illustrations of the elementary forms of disease; by ROBERT CARESWELL, M. D. Professor of Pathological Anatomy in the University of London, &c. Fasciculi, 1. 2.

The present age is no less distinguished for its improvement in medical science than for its enterprise in the arts. The energies of the professions appear to be actively engaged in contributing a portion to the accumulating mass of medical lore. These contributions are not only more extensive, but more important and valuable to the physician; since the day of wild theories and vague speculations has passed, and given place to firm, feasible and solid positions deduced from observation and sustained not only by the attendant phenomena and therapeutic regimen, but demonstrated by autopsic examination. This mode of investigation can alone reveal truth, and disclose the baseless and valueless character of the theoretical dogmas which have so long usurped the place of plain and evident facts. To the labors of the pathologists of the last half century we owe the philosophical state of our profession, and the rich contributions which are pouring in from every quarter, warrant the presumption, that the march of our profession will be onward. Among the pathological works of the present day, that of Mr. Carswell, occupies a prominent place:—the lucid exposition of the elementary forms of disease, contained in the text, and the accurate iconographic delineations render it an important acquisition to this department of medicine. The first fasciculus contains an article on the seat, external configuration, consistence and color, composition, softening, progress and termination of tuberculous matter, which is illustrated by four lithographic plates, displaying the different stages of tuberculous deposit in the lung, uterus and fallopian appendices, testicle, kidney, liver, mucous follicles, lacteals and mesenteric glands, brain and spleen. In the second fasciculus Mr. Carswell commences the heterologous formations under carcinoma, melanoma, pyroma, tyroma, lithoma:—the carcinometous deposit of the stomach, liver, duodenum and rectum are treated of, at length in the text, and illustrated by beautiful lithographic plates. The ability of Mr. Carswell to conduct such a publication and his rich opportunities for observation, together with the elegance of the typography and lithographic delineations cannot fail to secure a liberal patronage for the work. A. L. W.

This volume completes Mr. Liston's work on Surgery, which for perspicuity of style and beauty of arrangement is not surpassed by any similar work. The various surgical diseases are presented under an easy and natural classification, and are treated in a concise and lucid manner, while much useless matter has been omitted. The student will find embodied in this work the modern improvements in surgery, and we doubt not, but that ere long, it will become one of the most popular text books in this department. A. L. W.


"Iodine forms the basis of a great number of medicinal preparations which are the most successful in the treatment of divers affections, and especially of cutaneous disorders. It is thus for example that I obtain from it daily at the hospital the best effects in prurigo, for the cure of which ten or twelve baths generally suffice. But I will treat here only of its applicability to scrofulous cases. It is especially in the treatment of this disease that Iodine exerts a salutary influence. Of sixty-seven children subjected exclusively to its use fifteen were cured; fourteen others experienced such an amelioration that a complete cure was justly to be expected. These sixty-seven cases presented evidently very various lesions; often there existed many in the same subject; these amounted to the number of one hundred and twelve; forty-three were entirely cured—about two-fifths. Among the sixty-nine others many exhibited a very marked amelioration. Such a result obtained in the space of six months will appear of great value to practitioners, who know all the difficulties and tardiness in the treatment of scrofulous disease. There is no other remedy, whatever may have been the reputation it has enjoyed, which has operated so great a number of cures in so short a time. And however far the successes I have obtained are from equaling those said to have resulted from Iodine in another hospital, where it appears they meet with no cases that resist its action, I have not been so fortunate. I must confess that of one hundred and thirty-nine patients, nineteen died; among these last were many who had used iodine during some time; others in whom it could not be administered by reason of the disorders which existed in the digestive organs. I will admit that of the sixty-seven children to whom it was given regularly and for a long time there were five who scarcely experienced even a slight improvement, and twenty upon whom it had no influence either general or local. These facts prove that we are not so near, as has been asserted, to the time in which we would cure scrofulous patients by iodine, as we cure intermittent fevers with quinine, venereal diseases by mercury, &c. &c. The immense difference which exists in the mode of development of intermittent fevers and syphilis on the one part, and that of scrofula on the other part, gives us little reason to hope that we may arrive at a similar therapeutic result. In fact the two first affections are owing to the introduction into the economy of a heterogeneous principle; some conditions of relation suffice to produce them; the contact of certain parts for syphilis; the respiration of marsh effluvia for intermittent...
fevers. These maladies may be developed suddenly in the most flourishing health: the structure, the organization of parts, have not experienced any alteration. We conceive very well that another principle equally introduced into the economy may counteract the ill effects of that which is there already.

"Very different circumstances exist in scrofula. Here there is no introduction into the economy of a heterogeneous principle; there is profound modification of organization; modification produced under the empire of certain causes whose action is to be prolonged; modification which exists when the characteristic symptoms of scrofula are manifested; it necessarily precedes the appearance of those symptoms, which are but the local expression of a general disposition. The existence of a specific remedy for such a state of the whole economy appears to me very difficult to be conceived; it is the question, not only to cure a local affection, but to change the composition of the fluids and of all the tissues, to bring them back to the condition the most favourable to the maintenance of health. The cooperation of many agents is necessary to arrive at such a result, and even under such treatment it cannot always be obtained.

"Experience and theory combined demonstrate in many cases the impossibility of curing scrofula. It suffices to be convinced of this fact to have examined a few scrofulous bodies. I have communicated in speaking of necrosis, a case in which was seen the whole extent of the causes that may occasion scrofulous disease. Here is another not less conclusive.

"M. Victorine, aged nine years, was admitted into the hospital, February 1st 1831. She exhibited a white tumour on the left humero—cubital articulation, with caries and fistula; the fore arm was almost entirely extended and could not be bent; small ulcerations and fistulous sinuses were observable upon the dorsal face of the right carpus, of which many of the bones were in a carious condition. The right tibio-tarsal articulation, like that of the left elbow, was tumefied, surrounded with fistulous ulcers at the bottom of which the bones were felt to be denuded and friable. A quantity of pus was discharged from these fistula. The child was pale, emaciated, much enfeebled, could scarce remain sitting a few moments; she had an habitual diarrhoea, which ceased at intervals to reappear shortly; she had long laboured under a cough.

"A strict regimen, white decoction, lectuary of scordium, afterwards decoction of simarouba, syrup of poppies, were employed with few advantages to check the diarrhoea. Fearing that it might be owing to the absorption of pus I had recourse, on the 17th May, to the decoction of cinchona; bathing the hands and feet, morning and evening, with an alkaline water, removed the pus without diminishing its quantity. Three baths of iodine were used weekly. June 11th, a slight improvement determined me to prescribe iodine mineral water: I gave at first four ounces a day, which I increased two ounces on the 25th. On the 30th there was a return of the diarrhoea which nothing could stop; abundant sweating occurred every night; she died on the 1st August, a dreadful marasmus preceding.

"On the examination of the body I found the articular surfaces of the elbow and foot denuded entirely of their cartilages, and bathed with a brownish sanies. Many of the bones of the right carpus were equally denuded and carious.

"The cavity of the pleura had disappeared in great part by the adherence of the two folds of those membranes. The lungs contained many tubercles, the greater part in a crude state, some softened particularly in the superior lobes
in which existed four small abscesses. Nearly all the bronchial ganglia were enlarged and tuberculous. The mucous membrane of the stomach was generally thickened and softened, presenting some patches of a grayish slate color. The intestines, and especially the ilium and caecum, exhibited a great many ulcers with smooth edges, the tumefied borders of which were pale, some only presenting redness; there were perceived here and there small projections of a white grayish color, many of them ulcerous at the summit. A great number of tuberculous ganglia studded the mesentery.

"The state of this young girl had always appeared to me beyond the resources of art. When I saw her, her constitution was profoundly deranged: already a continual diarrhoea, and free suppuration, furnished by the diseased joints, had much enfeebled her; and the long continued stubborn cough, indicated sufficiently the affection of the lungs. Death took place, not by a cause which stopped instantaneously the play of the organs, but by the exhaustion caused by suppuration and diarrhoea; this exhaustion was so much the more rapid at it was impossible to repair the daily losses.

"The administration of iodine was without success; the state of the digestive organs did not permit the continued internal use of it, and the baths were insufficient: but even if it had been possible to give it internally a longer time and in stronger doses, can we believe that it would have procured the resolution of the pulmonary, bronchial, and mesenteric tubercles, that it would have brought on the cicatrization of the intestinal ulcers? It is unfortunately but too well demonstrated that we know no remedy capable of operating the absorption of tubercles.

"It is seen that I do not dwell upon articular disorders; their cure was not absolutely impossible; I may say however that if this has been effected sometimes in similar cases the disease has also often resisted every kind of remedy, even iodine itself.

"The cases in which the state of the digestive organs does not permit the administration of iodine are not rare: neither are those in which the scrofulous disease has already greatly effected the organs included in the splanchnic cavities, when it is manifested without. I have alluded to the presence of tubercles only of the lungs and mesentery: it would be easy to me, if the thing was not well known, to relate the details of cadaveric autopsies which were presented to me of them in the cerebrum, the cerebellum, the pia mater, the liver, spleen, kidneys, &c. If to these cases I add those in which Iodine does not exert any influence, and the number of which is very considerable, it will be seen that the remedy is far from being the specific of scrofula. I hasten to say, however, that of all the articles boasted of for the treatment of scrofula, it is incontestably that from which we may expect the greatest advantages. I know of no substance which in the space of six months has produced a number of cures equal to that I have obtained from its use, and Dr. Coindet has rendered a signal service to humanity in introducing it into the materia medica."

No human ills to which we are liable have commanded a more attentive and prolonged investigation; none have kept alive a deeper interest, and yet none have proved more obscure in pathology and more unyielding to remediate address, than those originating in the stramous diathesis. Every thing therefore relating to this opprobrious class of diseases arrests the inquiring eye, and the mind turns with pleasure and acracy from the painful contemplation of its numerous failures in practice, and its unprofitable perusal of speculative opinions, to such statements as are found in the memoir of M. Bau-
deloque; statements based upon ample experience and observation, and
given with a candor and impartiality that guaranty their fidelity and com-
mand confidence. We have given that part of the memoir which treats of the
therapeutic application of iodine in scrofula, entire, as well from the exceeding
importance of the subject generally, as from the fact, that M. Baudelocque
considers iodine the article with which we may hope to combat those obsti-
nate affections with the greatest degree of success. True, he expressly states
that he considers it "loin d'être le specifique de la maladie scrophuleuse," far
from being the specific of scrofula. This however so far from diminishing our
reliance upon the general adaptation of the remedy, should rather inspire us
with confidence in the recommendation of one whose judgment is unprejudiced,
and whose accurate observation and extensive clinical experiments still justify
an opinion of its superior remedeay virtue—an opinion well calculated to en-
courage careful, assiduous, and persevering efforts to arrest the progress of a
malady, whose multiplied and frightful forms are too apt to be considered irre-
mediable, and the hereditary tendency of which entails misery and apprehension
upon millions of the human race.

It may not be generally known that, such has been the protracted, and in
a majority of its forms, the confessedly incurable nature of this disease, that
patients labouring under it have been excluded from many of the hospitals of
continental Europe. More recently however, and especially since the gra-
tifying results of the zealous and philanthropic labours of M. Lugol, numerous
patients are admitted into the hospitals and relieved of their sufferings who
would otherwise have become its certain victims.

It was the misfortune of the writer of this article, and he believes of many
others, to fail in the first applications of iodine, and thus to lose confidence in
an article which he was induced to think its sanguine discoverer, M. Coindet,
had estimated too highly, and which he feared was little better than the nu-
umerous useless novelties constantly presented to the professional public. The
astonishing successes of M. Lugol, verified by M. M. Magendie, Serres, and
Dumeril, again awakened his attention, and subsequent experience can now
be added in support of the superior efficacy of its properly directed use. An
indiscriminate application of its various preparations, or an exhibition of any
form of it in conditions of the economy unfavorable to the exercise of its pe-
culiar properties, are not only likely to fail in improving the condition of the
organism, but most generally terminate in increased functional disturbance.
Exalted irritation, active inflammation, prostrated powers, impaired digestion,
and perverted nutrition, are conditions carefully to be held in view, and call
for such preliminary or collateral measures as the exact nature of the case
will indicate. M. Baudelocque has well remarked, that "cases in which the
state of the digestive organs does not permit the administration of iodine are
not rare." Irritation and pain in the stomach have often been produced under
such circumstances, requiring the exhibition of wine or tincture of quinina,
which promptly arrests these symptoms.

The extensive use of iodine by M. Lugol, in the Hospital St. Louis, made
him fully aware of its intensely irritating effect in the solid state upon the
stomach, an organ intimately associated with the lymphatic system of vessels,
which are most profoundly implicated in this disorder, and therefore calcu-
lated to increase the specific irritation of that system, and pervert more exten-
sively the great function of nutrition. It was for this reason that Mr. Lugol
was induced to substitute what he designates ioduretted mineral water for
the tincture of iodine, because when the latter is put into water solid iodine is precipitated: other reasons, applicable however more particularly to hospital practice, concurred to justify this change in the mode of administering the remedy. He uses three degrees of the ioduretted mineral water, number one two, and three. The first contains half a grain of iodine, dissolved in one pint of distilled water; the second two-thirds of a grain, and the third one grain, dissolved in the same vehicle. The iodine is rendered more perfectly soluble by the use of one-third of its weight of hydriodate of potash. M. Lugol always commences the treatment with number one; seldom gives number two until the second month, and never has found it necessary to exceed one grain per day—relying rather upon its continued use in quantities acceptable to the system, than hazarding a disturbance of the various functions by excessive doses.

It should not be overlooked, that in many aggravated forms of scrofula, the external application of iodine may be resorted to with great advantage. Independently of the peculiar adaptation of the various ointments to glandular, and articular tumors, and ulcerous lesions, the ioduretted baths have been extensively employed abroad, and with acknowledged utility, both in connection with internal treatment, and as a substitute for it in those cases of gastric idiosyncrasy unfavorable to its administration. It is not necessary that the strength of the bath should be greater than one-third of that of the mineral water for internal use; of course the hydriodate of potash is used to increase the solubility of the iodine, in the proportion of two parts of the former to one of the latter. It should be borne in mind that metallic vessels decompose iodine and render the baths inert.

There is one condition of the system to which we have alluded as important to be considered, in which the hydriodas ferri can perhaps be used with greater advantage than any other form of this article. The state of prostration in which we sometimes find patients who have labored under protracted scrofulous disease, indicates the necessity of a cordial and invigorating plan of treatment. Under such circumstances we have derived speedy and permanent benefit from the use of the hydriodate of iron dissolved in wine. This preparation has appeared to us to meet fully the exigencies of such a case, and we are not sensible of having been disappointed in its tonic and cordial influence.

It may not be amiss to introduce the following note of a case which came under my care at the Maryland Penitentiary:

P—V—was laboring under scrofulous disease, involving the concatenated glands of both sides of the neck, and also the lymphatic ganglia immediately below the clavicle and external to the ribs. Portions of the submaxillary and parotid glands appeared also to participate in the morbid affection from the great tumefaction and tenderness of these regions; possibly, however, the disease may have been limited to the lymphatic glands frequently found, embedded in those structures. Tarsi and conjunctiva expressive of chronic ophthalmia, from acute attacks of which he had several times suffered.—Pulse frequent, firm, and fretful. I was informed that he had been subjected to the customary routine of treatment for such stramous developments, modified to meet the peculiar indications of its several stages. When I saw him he was using internally the tincture of iodine, with an external application of the ointment of hydriodate of potash, which I continued, in compliance with the request of my predecessor, who desired to test the efficacy of
iodine in a case of extensive disorganization of structure and great obstinacy. At the end of one week the symptoms generally became so much aggravated, as to render an adoption of other measures necessary. General and local blood-letting, emollient and anodyne applications, (hops, linseed, chamomile, stramonium, cicuta, &c.) purgatives, collyria, epispatics, alteratives, and antimonials, were resorted to without any considerable mitigation of symptoms until the 8th day. Such indeed was the excessive violence of the ophthalmia, the thorough injection of the conjunctiva, corneal effusion, and intolerance of light, that no permanent relief was obtained until after the ball of the eye, and also the palpebral conjunctiva, had been freely scarified once upon each of seven successive days. After subduing the more urgent symptoms, it was still found necessary to pursue an energetic course of treatment, to prevent the entire disorganization with which the cervical structures were threatened. A seton was introduced into the back of the neck; regular saline evacuations were solicited, when necessary, by the use of vegetable aperients; and a diet, principally of milk and farinaceous substances, was strictly enjoined; the neck was sponged daily with a strong aqueous solution of common salt, and the bruised leaves of the Arctium Lappa (burdock) were then applied, the expressed juice being given in the quantity of a teaspoonful twice daily.

Burdock possesses slightly aperient, diuretic, and sudorific properties; it is also represented to act without irritation, and in this perhaps consisted its adaptation to the present case. Excessive irritability was a marked peculiarity, so much so that the continued use of the tincture of iodine appeared productive of an alarming aggravation of symptoms; to reduce these, active depletory measures were resorted to and in the subsequent use of this plant we adopted a means in obedience with the existing indications; possessing a bitterness bordering on tonicity, and thus perhaps invigorating the digestive and assimilating functions, and through these the disabled powers of the economy generally, whilst at the same time it exercised other remedial influences dependent on its aperient and diaphoretic properties.

The burdock* was prescribed, and diligently persevered in, until the recovery of the patient, a period of several months, at the instance of a medical friend, who assured me that in an extensive practice of many years in a neighbouring state, he had never known a case of strumous glandular tumefaction to resist the curative influence of this article. To express a similar confidence in the medicinal powers of this plant, would indicate an injudicious haste of opinion, and an indiscretion of enthusiasm, unbecoming what we should aim to be; diligent and cautious observers of facts, for these alone can promote the improvement of a science so obligatory in its duties, so important in its application to human ills. At the same time not to record the salutary result of rather a novel application of means to a morbid affection of admitted, and in this case peculiar obstinacy, would be a dereliction of duty equally censurable. In applying this rule of action to our present purpose, the associated means made use of in the treatment of the case, are not lost sight of; these doubtless exercise considerable influence in the production of a curative result.

The above case illustrates also what we previously stated in reference to unpleasant consequences apt to result from an injudicious use of the various

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*I believe Hufeland enumerates this plant among many others that he considers useful in scrofulous diseases—his treatise is not convenient to refer to—but he is not emphatic in its commendation. When the plant cannot be procured, it can be used in the form of extract.
preparations of iodine. Present experience justifies the opinion that, had the disturbed functions of the economy been properly regulated by well directed preliminary or accessory means, iodine might have been used not only without injury, but in the forms recommended by M. Lugol with decided advantage—and probably would have proved, as we have considered the burdock, the essential link in the effective chain of remediate application. With M. Baudelocque, we do not consider iodine a specific, yet a just confidence in its properties should not be impaired by the unfavorable results of ill judged use—

"Tis thus with all things, all may be abused,
Yet all will useful prove if rightly used,"—
a truism of very extended application.

In the extensive classes of disease afflicting the human race, none perhaps are characterised by a more obscure and complicated assemblage of symptoms than those originating in the scrofulous habit; none are more inveterate and destructive; none present more disgusting and repulsive features, and none more melancholy consequences even when life has been preserved. No part of the human organism is exempt from its active developments, and in a majority of individuals subject to its predisposing influence the more important organs, especially the lungs, are those most obnoxious to its fearful irruptions.—These facts are well calculated to incite to a laborious search after means to arrest the progress of this destructive malady. Such however, was the want of success attending the efforts of our predecessors that mute despair had paralyzed the zeal of the profession, and scrofulous diseases appeared destined to pursue an uninterrupted and unmitigated career, until the discovery of M. Coindet placed us in possession of "their most efficacious remedy." Armed now with an article exercising a powerful and salutary control over a large proportion of these disorders, and encouraged by the experience of M. M. Lugol, Baudelocque, and others, whose official stations have afforded them extensive opportunities of testing the virtues of iodine, it becomes a duty, especially with those whose public situations place it in their power, to extend and make known the results of continued experiment. There is just ground for presumption that the whole field has not yet been covered; doubtless there is still room for many new and valuable suggestions, as well in reference to the form and mode of use, as in regard to the peculiarities of the economy in which it proves useless or detrimental, and the varieties of morbid condition over which it exercises a remediate influence.  

H. W. B.

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_A Treatise on Physiology as an experimental science_, by Charles Frederick Burdach, with contributions from Charles Ernst Von Baer, Henry Rathke, Ernst. H. F. Meyer, and John Muller, &c.

Few circumstances furnish a more favorable indication of the recent advancement of medical science than the zeal and assiduity which have been recently manifested in the cultivation of physiology and pathology. Until the middle of the last century, scarcely any thing that could be regarded as even an approximation to truth was known of the diversified and complicated
functions of the animal organism, and to the great Haller, we must acknowledge our obligations, not only for clearing away the crude absurdities and vague hypotheses which had been revered for ages, but even for the creation of physiology as founded upon a knowledge of the animal structure. The Elementa Physiologiae, while it excites our wonder that a work of such magnitude and of so much science should be accomplished by one individual, is in a stronger degree entitled to our admiration for the immensity of its learning and the correctness of its principles. As it had no prototype, so has it remained for more than a half century without a worthy successor. Within that period, many works on physiology, it is true, have been obtruded upon the public, but until Bichat gave a new impulse to this department of science by the exposition of the important facts of general anatomy, the works which were published, were merely made up of meager and ill-digested gleanings from the great work of Haller.

The analysis of the tissues first accomplished by Bichat, and subsequently still further perfected by his successors, opened a new destiny for physiological science, and the numerous accessions which it has since received, from the multiplied experiments and investigations instituted with the view of elucidating its principles, have contributed greatly to fix it upon the immutable principles of truth. Under the new direction thus given to physiological research, the science has been largely enriched by the labors of Legallois, Magendie, Adelon, Broussais, Dutrochet and others, in France; by those of Bell and Mayo in England; and in Germany especially, by the indefatigable investigations of Rudolphi, Meckel, Treviranus, Tiedemann and the individuals whose names are affixed to the present treatise. Several attempts have been made to embody and arrange the multitude of facts and principles which have been thus accumulated, but as yet nothing has been accomplished that can be regarded as a complete and faithful digest of the present state of the science. We have, it is true, a multiplicity of elementary works, many of which are excellent in their way, amongst which we may mention with commendation those of Magendie, Adelon, Broussais, Begin, Mayo, Blumenbach, Rudolphi, (which the author did not live to finish) Jackson and Dunglison; but they merely embrace an outline of the principles of Physiology, and cannot be referred to for a full and satisfactory detail of all its riches. To supply this important desideratum, Professor Tiedemann, of Heidelberg, some time since announced the project of an extensive work, the first volume of which was published in 1829, but has not as yet been followed by a second; and doubtless with the same view, Professor Burdach commenced the work which we have announced at the head of these remarks, and which, as will be seen, has already reached the fourth volume.

Our author, after some preliminary remarks on the properties of organic and inorganic bodies, and on life, enters directly upon the consideration of their origin. All organised bodies, both vegetable and animal, derive their existence from the process of generation, which is divided into heterogeneous and homogeneous, according as it takes place independently of a preexisting species of the same kind, as in the infusoria, &c.; or is effected by a series of organic acts taking place in an individual, which by this process is enabled to propagate its species. The latter form of generation is divided by the author into that which is performed independently of sexual organs, as by cuttings, engrafting, the germination of seeds, &c.; and sexual generation, or that which is effected by the instrumentality of sexual organs, whether they appertain exclusively to one individual, or the cooperation of two is required in the com-
summation of the process.—The author takes up the whole of the first volume in the discussion of the subject of generation, which is examined under all its modifications, as manifested through vegetable and animal life. In the second volume, he examines the subject of conception, the development of the ovum, the changes it undergoes, the evolution of the fetus and its appendages, and in short, the history of the fetal or intrauterine life, as compared with the mode of existence to which the new being is submitted after it is thrown upon its own resources, and is no longer dependent upon the mother. All these subjects are illustrated by tables or diagrams.

The third volume commences with the subject of delivery. The author first inquires into the cause of labour, the changes brought about by it as regards both mother and child, and the modifications which take place in the systems of both after its full consummation. This leads to the investigation of the individual as entering upon a new career of existence, and the different changes which take place in its economy throughout its entire progress from the period of infancy, to that of decrepitude and final decay. The range of independent life (selbständigen Leben) comprises four periods: 1. childhood; 2. youth; 3. manhood; and 4. old age. The first commences at birth, and the last terminates at death. The various modifications of animal life experienced during these stages of existence, and the manner in which the individual is influenced by the various physical and psychologial agencies to which it is exposed, are detailed by the author with considerable minuteness.

The fourth volume is appropriated to a description of the properties of the blood and the mechanism by which it is moved. The author has entered upon a minute examination of these subjects, and in relation to many of their mooted points, has adduced a number of important facts and philosophical arguments.—Indeed, as far as the present four volumes have conducted us, he has treated his subjects elaborately, and if in some instances he somewhat over tedious, or wanders a little too far into the refined speculations of the doctrine of polarity, he has in the main executed his task with ability. As we propose shortly to enter upon a more minute examination of his labors, we can, in the mean time, only hope for a continuance of them, and commend what he has already accomplished to the attention of the votaries of physiological science.

E. G.

Art. XVII. A Manual of Practical Toxicology, condensed from Dr. Christie's Treatise on Poisons, with notes and additions, by J. T. Ducatell, M. D. Professor of Chemistry and Pharmacy in the University of Maryland, &c. 1 vol. 12mo. pp. 341. William & Joseph Neal, Baltimore.

There is perhaps no subject within the whole range of medical inquiry, possessing a stronger claim upon the attention of the physician than toxicology. In the bountiful provision which Providence has made for our wants and our gratifications, she has set a bar to our excessive indulgence, by spreading around us an infinity of articles, which, though salutary when employed with moderation, are destructive of life when used improperly. The whole kingdom of nature abounds with objects of this character. There are numberless minerals which captivate our senses by the sparkling lustre of their crystals—of animals that delight the eye by the brilliancy of their colors, or the
beauty of their mechanism—of vegetables that enrobe every valley and hill side with their splendid and variegated flowers, which at the same time have concealed within them a rank and deadly poison. Even the air we breathe, and the food that nourishes us, may have mingled with them the elements of contamination and death. Thus surrounded as we are by dangers, our existence is one of continuous peril. We are not only exposed to destruction from the accidental indulgence in, or exposure to, things, the properties of which are known, and those of which we are ignorant, but the wicked passions and propensities of man frequently impel him to resort to the employment of these means of destruction, either for the gratification of his vindictive feelings, or the accomplishment of other sinister purposes.

Society has been exposed to these accidents at all periods of the world, and although we have not at the present day, as in the olden time, those who poison by trade, nor Lurida terribles miscent aconita nuperose.

As in the days of Ovid, melancholy experience reveals to us, that hundreds of victims are sacrificed annually, by the accidental or criminal employment of poisons, or by the injury inflicted by venomous and rabid animals. As, therefore, accidents of this kind are constantly occurring, and generally prove speedily fatal, unless immediate assistance be at hand, the community at large, as well as the members of the medical profession, should be informed, not only of the properties of those articles which are poisonous, that they may avoid them, but likewise of the proper means to be employed where the mischief has already been inflicted. To the professional man, especially, this knowledge is indispensable; and however well he may be informed on other subjects, to be ignorant of this is criminal.

These truths have been for a long time felt and acknowledged, yet unfortunately the subject of toxicology still remains too much neglected. Much, it is true, has been done to illustrate its principles; many treatises have been written, purporting to embody every thing of importance, both in relation to the phenomena and treatment of poisoning, and the questions growing out of cases likely to be brought up for juridical investigation; yet it must be confessed, that most of these works have fallen far short of the objects proposed.—Amongst the numerous writers on toxicology, few whose works date anterior to the commencement of the present century, are entitled to any considerable share of our confidence. The state of chemical science was too unsettled to furnish those clear and satisfactory illustrations, which its subsequent advancement has contributed to unfold. The works of Joseph Frank, and Plenck, contain much useful matter; but for the reason just urged, they are not adapted to the present state of the science, and are for the most part unknown in this country. The treatises of Bertrand and Orfila, the latter especially, have contributed largely to enrich our knowledge on toxicological science; but the latter alone is known to the majority of the profession of the United States, and that only through an injudicious abridgment, which has shorn it of the value which it possessed in its original form. The smaller manual of Orfila was designed more especially for popular use, and though well adapted in some respects for that purpose, it is not suited to the wants of the profession; neither is it up to the present improved state of the science. The labors of Addison and Morgan have contributed much to illustrate many principles, but the only work we have in the English language, which embodies any thing like a complete system of toxicology, is that of Professor Christison. It is deserving our highest commendation; but notwithstanding all its merits, it still leaves
Ducatel's Manual of Practical Toxicology. 219

a desideratum to be supplied. It should be referred to in all cases of doubt and uncertainty, but from its size, and the copiousness of its details, it is by no means convenient for hasty reference, such as is necessary in cases of emergency; nor is at all adapted to the purposes of popular use. In addition to this, it is in the hands of but a limited number of the medical profession in the United States, and consequently a large proportion of our practitioners are left without a guide which they can consult on the trying and afflicting occasions which they are sometimes called upon to witness.

These considerations have induced Professor Ducatel to prepare an abridgment of the excellent work of Dr. Christison, which he has so arranged and executed, as not only to facilitate reference, but also to adapt it to the immediate wants of all, either professional or unprofessional, who may be called upon to administer relief where poisoning has taken place, either by accident or design. He has condensed, within a small compass, all that is most important in relation to the different kinds of poisons; their effects and modus operandi upon the human body; the best method of affording relief either by antidotes tending to neutralize or counteract the influence of the poison, or by treatment directed for the removal of their consequences; and finally, the principal post mortem appearances which are observed where death takes place. Many of the details contained in the original work on the chemical history of poisons, and those considerations which appertain specially to the medical jurist, have been omitted.

But while the ideas and the language of Dr. Christison have been preserved, as far as was compatible with the brevity necessary on such an occasion, the arrangement of the work has been entirely changed, with the view of treating the subjects in a more natural order, and facilitating reference. With the latter intention also, all the paragraphs have been numbered, and an exceedingly copious and well digested index has been added. Some useful observations on the poisons of this country have been incorporated in the body of the work and appended in form of notes; and the botanical descriptions of the several vegetable articles have been extended. There are also two appendices added to the work; the first on the adulterations by copper of articles of food and drink; the second on adulterations by lead.

As an exemplification of the manner in which Professor Ducatel has executed his task, we select at random the section on

"Poisoning with Hydrocyanic Acid."

"1. Of the Action of Hydrocyanic Acid and the Pathological Symptoms it excites in Man."

"Of all the forms in which the prussic or hydrocyanic acid can be administered, that of vapor appears the most instantaneous in operation. The effects of the diluted acid are the same when the dose is very large, but somewhat different when inferior doses are given." It acts probably even through the sound skin.

"The result of some experiments favors the supposition that hydrocyanic acid acts through the medium of the blood vessels. But the extreme rapidity of its operation in large doses, is usually considered incompatible with an action

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The anhydrous hydrocyanic acid is seldom if ever found in the shops. The medicinal acid is equivalent to about one part of strong acid to six parts by volume of water, the dose of which is from two to eight drops, further diluted with distilled water.
through the blood, or any other channel except direct conveyance along the nerves. It acts on the brain, and also on the spine, independently of its action on the brain. Its action on both is clearly indicated by the combination of coma with tetanus.

"Hydrocyanic acid affects all animals indiscriminately. From the highest to the lowest in the scale of creation, all are killed by it; and all perish nearly in the same manner. It is poisonous in all its chemical combinations."

"As for the symptoms observed in man, the following is a good account of the effects of small doses, as ascertained by Coullon on himself. When he took from twenty to eighty-six drops of the diluted acid, he was attacked for a few minutes with nausea, salivation, hurried pulse, weight and pain in the head, succeeded by a feeling of anxiety, which lasted about six hours. Such symptoms are apt to be induced by too large medicinal doses. Another remarkable symptom, which has been sometimes observed during its medicinal use, is salivation, with ulceration of the mouth."

"Of the operation of the poison when not quite sufficient to kill, the case of a French physician will convey a good idea. Very soon after swallowing a tea spoonful of the diluted acid he felt confusion in the head, and soon fell down insensible, with difficult breathing, small pulse, bloated countenance, dilated insensible pupils, and locked-jaw. Afterwards he had several fits of tetanus, one of them extremely violent. In two hours and a half he began to recover his intellects, and rapidly became sensible; but for some days he suffered much from ulceration of the mouth and violent pulmonary catarrh, which had evidently been excited by the ammonia given for the purpose of rousing him. This gentleman had eruptions with the odor of the acid three or four hours after he took it; and during the earlier symptoms the same odor was exhaled by his breath.

"As to the effects of fatal doses, it is probable that in man, as is found to be the case in animals, two varieties exist. When the dose is very large, it is reasonable to suppose that death will take place suddenly, without convulsions. But for obvious reasons the symptoms in such cases have not been hitherto witnessed.

"The most complete account of the symptoms from fatal doses when convulsions occur, is given in a case reported by Hufeland, of a man, who, when apprehended for theft, swallowed an ounce of alcoholised acid, containing about forty grains of the pure acid. He was observed immediately to stagger a few steps, and then to sink down without a groan, apparently lifeless. A physician, who instantly saw him, found the pulse gone and the breathing for

"Cyanuret of potassium dissolved in eight times its weight of distilled water, forms the medicinal Hydrocyanate of potassa, which is the only combination of the acid employed; it is administered in the same dose as the hydrocyanic acid. The pectoral julep, and pectoral mixture, of Magendie's Formulary, are prepared with the hydrocyanate of potassa. The same author mentions also a Syrup of hydrocyanate of potassa.

"Dr. Chrison makes this assertion upon the authorities of Drs. Macleod and Granville. The former gentleman thrice had occasion to remark this in patients, who had been using the acid for about a fortnight, and twice in one individual; and Dr. Granville says he had also twice witnessed the same effect. Nevertheless it is suspected that salivation in these cases has been brought about by the use of an impure acid, containing perhaps a small quantity of the deuto-chloride of mercury, particularly if the acid had been prepared according to the process of the Dublin college, namely, with bicyanide of mercury, muriatic acid, and water. In fact, we are informed by our colleague, Dr. E. Geddings, that in other cases where salivation has likewise been produced apparently by the use of hydrocyanic acid, mercury was actually discovered in the acid by Sylvester's test."
some time imperceptible. After a short interval, he made so forcible an expiration, that the ribs seemed drawn almost to the spine. The legs and arms then became cold, the eyes prominent, glistening, and quite insensible; and after one or two more convulsive expirations, he died, five minutes after swallowing the poison.

"The period within which hydrocyanic acid usually proves fatal, is fixed with considerable accuracy, not only by the cases observed in the human subject, but likewise by the experiment of many physiologists. It is probable that very large doses occasion death in a few seconds; and at all events, a few minutes will suffice to extinguish life when the dose is considerable; but if the individual survive forty minutes, he will generally recover under active treatment. In the course of a dreadful accident, which lately happened in one of the Parisian hospitals, where seven epileptic patients were killed at one time by too large doses of the medicinal acid, it was found that several did not die for forty-five minutes.

"2. Of the Treatment of Poisoning with Hydrocyanic Acid.

"The only remedies which appear to promise any material advantages in cases of poisoning with hydrocyanic acid are the powerful and diffusive stimulants.

"Of these, ammonia is considered by many the most energetic antidote: But it must be administered with this caution—not to use a strong ammoniacal liquor, otherwise, the mouth, air-passages, and even the alimentary canal may be attacked with inflammation, as indeed happened to the French physician, whose case is mentioned, (552.) The strong aqua ammonis should be diluted with twelve parts of water.

"Another remedy of the same kind with ammonia, as to action, is chlorine. Orfia infers from his experiments, that it is the most powerful antidote of all that have been proposed. His experiments have convinced him, that animals, which have taken a dose of poison, sufficient to kill them in fifteen or eighteen minutes, will be saved by inspiring water impregnated with a fourth part of its volume of chlorine, even, although the application of the remedy be delayed till the poison has operated for four or five minutes. In some of his experiments, he waited till the convulsive stage of poisoning was passed, and the stage of facciety and insensibility had supervened; yet the animals were obviously out of danger ten minutes after the chlorine was first applied, and recovered entirely in three quarters of an hour.*

"Cold affusion has been recommended.—When the dose of the poison was insufficient to prove fatal in ordinary circumstances, two affusions were found commonly sufficient to dispel every unpleasant symptom. When the dose was larger, it was necessary to repeat the affusion more frequently. Its efficacy was always most certain, when it was resorted to before the convulsive stage of the poisoning was over; yet, even in the stage of insensibility and paralysis, it was sometimes employed with success. In the latter instance, the

* "According to Dr. Thomson, chlorine so completely neutralizes the action of the hydrocyanic acid; that, in one instance, when respiration had been suspended for twenty-five seconds, and the animal apparently dead, it was rapidly revived by the chlorine, and in a short time recovered its usual vivacity.—When the acid has been swallowed, the chlorine may be given in the ordinary aqueous solution; when the poisonous effects have resulted from inhaling the vapor of the acid, the chlorine is to be administered in the gaseous form, largely diluted with atmospheric air.
first sign of amendment was renewal of the spasms of the muscles. The cold affusion is considered, however, to be inferior in power to chlorine.

"On the whole, then, it appears that the proper treatment of a case of poisoning with hydrocyanic acid, consists in the use of the cold affusion, and the inhalation of diluted ammonia or chlorine; and as chlorine will hardly ever be at hand, ammonia will commonly be employed. Venection is also probably indicated by the signs of congestion in the head.

"3. Of the Morbid Appearances produced by Hydrocyanic Acid."

"Under this head it is first to be remarked, that the blood is generally altered in nature. It has been found perfectly fluid everywhere in the human subject. But this state is not invariable. Some cases are mentioned in which the blood coagulated after flowing from the body; and in one instance it was found coagulated in the heart.

"In the next place, it is observed, that the blood and cavities of the body in animals exhale a hydrocyanic odor, even though the quantity taken was small. The blood did so in the heart as well as throughout the whole body, in cases mentioned of the human subject. The odor, however, is not always present; and it appears that it may be distinct in the blood, brain, or chest, when hardly any is to be perceived in the stomach.

"As to the circumstances under which the hydrocyanic odor may or may not be expected, it is stated, that if the dose is sufficient to cause death within ten minutes the peculiar odor will always be remarked in the blood of the heart, lungs, and great vessels, provided the body have not been exposed to rain or to a current of air, and the examination be made within a moderate interval—for example, twenty-one hours for so small an animal as a dog; but that, if the dose is so small that life is prolonged for fifteen, twenty-seven, or thirty-two minutes, then even immediately after death it may be impossible to remark any of the peculiar odor, evidently because the acid is rapidly discharged by the lungs; and that even when the dose is large enough to cause death in four minutes, the smell may not be perceived if the carcass has been left in a spacious apartment for two days, or exposed to a shower for a few hours only.

"Venous turgescence and emptiness of the arterial system, is commonly remarked throughout the whole body. Thus, in the epileptic patients, (555) the heart and great arteries were empty; the great veins gorged; the spleen gorged, soft and pulvaceous; the veins of the liver gorged; and the kidneys of a deep violet color, much softened, and their veins gorged with black blood.

"It is impossible that hydrocyanic acid could cause gangrene of the stomach, which is said to have been witnessed in one case. But there are often signs of irritation in that organ. The villous coat has been found red in animals; it was shrivelled, and its vessels were turgid with black blood in a case related of a human subject; in another it was red and checkered with bloody streaks; and in a third case, where four ounces were swallowed, it was dark-red, as though it were tanned or steeped in spirits, and easily separated from the subjacent coats.

"It appears that even long after death the eye has a peculiar glistening and staring expression, so as to render it difficult to believe that the individual is really dead; and this appearance has been considered as a decisive evidence of poisoning by hydrocyanic acid. But the accuracy of this opinion may be questioned. The appearance is indeed very general in cases of poisoning with preparations that contain the hydrocyanic acid. But, on the one hand, it is not a
constant appearance, for it was not observed in the seven Parisian epileptics. And, on the other hand, it is not peculiar, for death from carbonic acid has the same effect; (603;) and it has been observed in cases of death from cholera, and during the epileptic paroxysm."

We cannot better express our opinion of the work, than by declaring, that it should be in the possession of every physician, and every private family.
ANATOMY.

1. The Ad-Orbital bone, by Geoffroy St. Hilaire.—The existence of this bone in men, which is very manifest in oviparous animals, has been for some time asserted by M. Serres, and was admitted by Geoffroy St. Hilaire, in 1824, in his table of the enumeration of the bones of the head in man and animals. Several fruitless searches having been subsequently made for it by other individuals, induced him, with the view to prevent any impressions which might arise from this want of success, to present several specimens detached from the os unguis. It is a thin plate, about eight or ten lines in length, by five or six in breadth, and is truncated in the manner of a Phrygian bonnet. Its wide base forms part of the sphenoidal fissure, and its summit, which is somewhat arched, is directed towards the margin of the orbit. It is so situated as to form a part of the floor of the orbit, being lodged between the malar bone, to which it is united by its external margin, and the long portion of the orbital plate, (subocular) of the maxillary. Its use is as well determined as its situation. It covers the canal of the maxillary bone, in which are lodged the vascular and nervous trunks, which, escaping through the sphenoidal fissure, are in part distributed in the substance of the bone, and pass in part through the infra-orbital foramen to supply the face. It forms, therefore, a kind of vault for the canal which contains the vessels and nerves, and its elongated borders are articulated, by a kind of squamous suture, with the subjacent maxillary, and with the malar bone, slightly overlapping the articulating margin of the latter.

In young subjects, it exists as a separate piece, but it is subject to several modifications, being in some cases inseparably united with the orbital portion of the superior maxillary, which it overlaps, but occasionally retaining its primitive fibrous condition.—Annales des Sciences Naturelles. May, 1832.

2. Muscular Structure of the Crystalline Lens, and Ciliary Zone. By Thomas Smith, Surgeon, Fochabers.—The extreme transparency of the capsule of the lens in its sound state, renders its structure difficult to be ascertained by direct ocular observation. Certain peculiarities, however, which have not been mentioned by anatomical writers, are sufficiently distinct to be seen by the help of the microscope, or even with the naked eye, in a favorable light. If the whole vitreous humor, and lens included in it, are taken out of the eyeball, by cautiously separating the hyaloid membrane from its connexions with the parts around the iris, the lens in its capsule is seen surrounded by a beautiful radiated circle or zone, which has been generally, but erroneously described as merely the marks left by the ciliary processes on the hyaloid membrane. Even the celebrated Cuvier, speaks of it as nothing more. Dr. Knox, of Edinburgh, corrects this mistake. The zone around the capsule exhibits, he says, "a very complicated structure, on that part of the hyaloid membrane on which the ciliary processes rest, we find an equal number of folds or laminae, which projecting outwards, are dove-tailed, as it were, with the ciliary processes. These membranous folds are vascular; the vessels pass in great numbers from the ciliary processes to them, and these vessels, together with
Anatomy.

225

the dove-tailing of the two sets of processes, form, as every anatomist ought to know, the bond of union between the choroid and hyaloid membranes,—which otherwise would have no connexion with each other." The radii, which are here termed membranous folds, unite together in a circular ring around and close to the capsule, and even seem to spread over the circumference of the capsule itself, giving it a notched appearance, noticed by M. Cloquet, and forming a pretty broad belt all round the capsule. To the naked eye the radii of the zone, when washed free from the black paint which generally adheres to them, the ring in which they unite, and the belt which I have described as surrounding the capsule, have a remarkable resemblance to the muscular fibre of the haddock, or of the whiting; and when they are viewed through a powerful microscope, the fibrous structure is seen in the most distinct manner along the ridges of the radii and across the ring and belt.

If we divide the eyeball of any of the larger quadrupeds into two nearly equal parts, by a section of the sclerotic coat and vitreous humor parallel to the plane of the iris, and invert the section containing the lens, that body will be seen through the remaining part of the vitreous humor, surrounded by a radiated circle, consisting of the zone of the hyaloid membrane above mentioned, in conjunction with the ciliary processes of the choroid coat, and forming what has been called the ciliary body,—the following particulars respecting which deserve attention. It consists of about eighty larger radii or ridges, regularly arranged around the capsule, and pointing to the centre of the lens, but terminating abruptly where they touch the capsule. These ridges swell out and assume a bulging appearance towards their middle, from whence they divide both ways into more slender ramifications,—of these smaller branches, those which proceed to the capsule Anastomose together, branch to branch of the contiguous larger ridges, so as to support or act upon, equally almost every point of the circumference of the capsule. Those branches that go out in the opposite direction are nearly twice as numerous; and as they lay hold of the retina, they must support or act upon it, because the ciliary ligament which binds the ciliary body to the sclerotic coat, is situated directly behind the bulging part of the radii. The breadth of the ciliary ligament is never equal to that of the ciliary body, consequently part of the ramifications of each ridge must be loose in both ways; so that whatever be the function of the radii, the ciliary ligament must be the fulcrum or point of support on which the action of the smaller ramifications bears, both ways.

Reflecting on these circumstances, (the force of which the reader will better understand by examining the parts with his own eyes,) and on the fibrous structure and fleshy appearance of the ridges of the zone and belt, surrounding the capsule,—the muscularity of these parts appeared to me highly probable, particularly when the elegant regularity of their arrangement and their constancy in all classes of animals, even when no ciliary processes were to be found, were taken into view; together with the manifest provision made by nature to supply them plentifully with fresh blood, contrary to what is found in parts whose office is merely ligamentous.

Unwilling, however, to depend on such evidence alone, I endeavored to find a method by which muscular fibre might be distinguished from other tissues, for which, as in the present instance, it might be mistaken. The description given by such physiological writers as I had access to, of the changes produced on some of the animal tissues by boiling water, suggested to my mind an experimental inquiry with that agent, from which I was enabled to deduce the test I was in search of. The general results of the inquiry were,—that all animal tissue that was certainly muscular, contracted in the direction of the fibre, when immersed in boiling water; all tissue that was certainly tendinous or ligamentous contracted in the direction of the fibre, but more largely. By the contraction muscle lost about one-third; tendon more than one-half its length. All purely membranous envelope, such as the peritoneum, pericardium, &c. contracted like tendon, but in all directions. All muscular tissue, from being transparent before immersion in boiling water, became opaque and white after it. The transparency of the muscular fibre of the clear blooded animals, such
Quarterly Summary of Intelligence.

as the cod, whiting, &c. is obvious; and in the red blooded animals, the transparency of the fibre permits the blood to be seen through its tendon or ligament, from being white and glistening; became semi-transparent and yellowish in boiling water; and purely membranous tissues, whose office is akin to that of ligament, remained transparent after immersion in boiling water, as they were before it. From these facts, I have ventured to deduce the following test, by which the muscularity of a transparent tissue may, if the principle appears well founded, be tried.

Test.—Immerse in water boiling hot the transparent part of animal tissue to be tried: if it contract about one-third part of its length, and become opaque and white, it is muscular: if it does not contract, it is not muscular, though it become white: if it contract more than one-third, and remain transparent, it is of a ligamentous nature.

Dr. Young, it is known, supposed that the crystalline lens consisted of muscular and tendinous fibres, arranged in concentric layers, and intermixed with gelatinous substance, and that by the action of the muscular part of the layers, the convexity of the lens was adapted to the distance of objects. Tried by the above test, however, when digested of its capsule, the lens merely became opaque and white, but continued of the same diameter and thickness, and did not undergo any alteration of sphericity. A very different result was obtained when the lens contained in its capsule was immersed in boiling water. The lens of a cow, with its capsule around it, measured in diameter 0.7 inch, in thickness 0.5 inch, before immersion. After it had lain in boiling water till it became opaque and white, it measured on being taken out 0.65 inch in diameter, and 0.55 inch in thickness. In losing in diameter and gaining in thickness, the lens of course acquired a greater degree of sphericity. The alteration, in this respect, was indeed so remarkable, that a gentleman of science to whom I showed the two lenses of the same animal, after they had been immersed in boiling water, the one with, the other without the capsule, pronounced, without hesitation, that they must have belonged to very different animals. Similar results were obtained by the examination, by the same process, of the lenses of the ox, stag, sheep, pig, roe, rabbit, rat, domestic fowl, codling, herring, whiting, and flounder. From this it is obvious, that the change of sphericity produced by the immersion of the lens in boiling water is due to a contractile power in the capsule alone. By measuring the breadth of the capsular belt above mentioned, before and after the immersion, I found that it was rendered narrower as well as shorter by a boiling heat; and as the transverse circumference of the lens in its capsule was, as nearly as I could determine, the same before and after immersion, this proves the important fact that the contraction of the transverse fibres of the belt is compensated for by an expansion of the elastic membrane constituting the seat of the capsule. In order to try to what class of tissue the capsule belt and radii surrounding it belonged, I removed the lens from the capsule, and immersed the capsule attached to the radiated zone, along with the whole vitreous humor, in boiling water. The belt contracted both in length and breadth, and became white: the anterior part within the belt became white, but did not contract; the posterior part within the belt remained transparent. The radii of the hyaloid zone contracted and became white. These radii, therefore, and the belt around the capsule, exhibit the properties of the muscular tissue.

From these facts the following corollaries may be deduced:

1. The lens of animals, in its original state, consists of a peculiar gelatinous fluid, which admits of being moulded into various degrees of sphericity, and condensed towards the centre by the functional action of its capsule.

2. The capsule of the lens is provided, around its circumference, with a muscular belt, by the contraction of which the two surfaces of the lens are made more convex, and the eye adapted to near objects.

3. The radiated zone, to which the capsule is firmly attached all round, is provided with a muscular structure, by the contraction of which, and simultaneous relaxation of the capsular belt, the figure of the lens is flattened, and the eye adapted to distant objects.—Brewster's, &c. London and Edinburgh Philosophical Magazine, July, 1835.
Anatomy.

3. Structure of the Placenta.—Examination of the Hunterian Preparations at the College of Surgeons—by Edward Stanley and Herbert Mayo.

The preparation in the Hunterian museum which throws the most light upon the structure of the placenta, and upon the extension of the maternal circulation into it, is marked No. 5,585.

The specimen is a triangular portion of a placenta, having a surface of about four square inches, one of the sides of which is formed by the margin of the placenta, the other two being cut surfaces, the depth of which at the angle at which they meet is an inch and a half. It consists of one entire lobe, and of portions of three other lobes of the placenta. Three kinds of wax injection—one yellow, a second red, a third black—have been thrown into it. The yellow wax, which appears to have been injected last, and more sparingly than the others, is seen to be in the umbilical arteries. The sources and place of the black and of the red injection, with the latter of which the portion of the placenta under consideration is most colored, will be pointed out afterwards.

The substance of the placenta is seen to be covered by two layers of decidua, one disposed on its uterine, the other over its fetal surface: these two layers of decidua meet of course at the circumference of the placenta. Upon one of the cut surfaces of the placenta, productions of the decidua are seen extending through the placenta from the fetal to the uterine layer of the decidua, which they unite.

Upo the uterine surface of the uterine layer of the decidua, are seen orifices of different sizes, some containing red wax, others black wax. Some of these orifices are upon the surface of the lobes, others at the interlobular spaces. The orifices containing red wax open indiscriminately in either situation. The orifices containing black wax open principally at the interlobular spaces. It may be presumed that the orifices containing black wax were continuous with and injected from the uterine veins, and that those which contained red wax were continuous with and injected from the uterine arteries, upon the following grounds:

The orifices containing black wax are larger, and lead into larger channels, than those which contain red wax. Some of those which contain red wax lead into channels which have the singular tortuous character described by Mr. Hunter, and by others, as characterizing the termination of the uterine arteries. And there is a preparation of part of an uterus, in the same series in the gallery, which there can be little doubt is that from which the specimen under consideration was separated, and in which the arteries are injected with red, the veins with black wax.

The orifices upon the uterine surface of the uterine layer of the decidua lead into flattened tubes of greater or less length, which tubes appear to be regular channels, with smooth internal surfaces, formed in the substance of the productions of the decidua. Of these tubes, those which contain red wax are called, in the following description, decidual arteries; those which contain black wax, decidual veins.

One large decidual vein runs along the placental margin of one lobe. Another, of smaller size, passes nearly vertically in an interlobular fissure from the uterine to the fetal surface of the placenta. The former terminates opposite to an interlobular space at the edge of the placenta in two small decidual veins: one of these smaller veins opens into the extremity of the vertical interlobular vein, just described; the other extends along the fetal surface of the placenta. A third decidual vein, smaller than either of the preceding, dips into a different interlobular space, and after a course of a quarter of an inch, divides into two smaller veins.

Of the decidual arteries, those which open upon the lobules of the placenta make a sudden turn below the uterine layer of the decidua, and terminate there, forming the short curving arteries of Hunter. The interlobular decidual arteries descend nearly vertically towards the fetal surface of the placenta. One is seen to reach that surface, accompanying an interlobular decidual vein described above. Another, larger than the preceding, passes for the length of half an inch only into an interlobular space.
This preparation, therefore, distinctly establishes that there exist, formed in the decidua, and terminating on or extending into or through the substance of the placenta, regular channels, one class of which is continuous with and receives blood from the uterine arteries, while the other is continuous with and returns blood to the uterine veins.

The manner in which the decidual vessels terminate is best seen in those decidual arteries and veins which enter the substance of the placenta, but do not extend to its fetal surface. Each of the vessels of this class, that was examined, divides into two branches. These branches, after a short straight course, terminate abruptly. At their abrupt terminations, the tissue of which they are composed, appears at more than one point to be porous. The smooth lining of the decidual trunks does not appear entirely divested of the same character. This appearance in the decidual trunks is most distinctly seen in a large interlobular decidual vein. Immediately without and around the tissue in which the vascular channels are formed, is the injected and seemingly cellular decidual tissue of the placenta.

The preparation, No. 3553, would, indeed, leave in doubt whether the red injection, with which it is colored, is contained in cells, or in a series of minute decidual tubes, comparable to capillaries. But there are four other preparations in the Hunterian museum, seemingly taken from the same subject with that described, and in which the portions of uterus and placenta are not separated. Three of these, Nos. 3539, 3553, and 3558, and especially the first, certainly display a series of cells filled with black injection from the uterine veins. In one of these, numerous openings into cells from the side of a marginal decidual vein are distinctly to be seen.

There are other preparations which, taken singly, are less illustrative; but the whole beautiful series appears to us to establish in the clearest manner the correctness of the views which Hunter entertained of the relation of the maternal to the fetal circulation in the human placenta.—London Medical Gazette, July 1833, p. 353.

PHYSIOLOGY.

4. Observations on the Blood, by Professor Muller, of Bonn.—I avail myself of the present occasion, to communicate to the Academy of Sciences, an observation I have made on the blood, which I think merit some attention. I have succeeded in demonstrating that it is not the globules that contain the coagulable part of the blood or the fibrine, but on the contrary, that the fibrine is dissolved in the serum. To render this manifest, it is necessary to use blood, the globules of which are sufficiently large to prevent them from passing through the pores of the filter, such, for example, as that of the frog. If the blood of this animal be received, from a leg which has been amputated, upon a filter of white moistened paper, and be at the same time mixed with an equal quantity of water, or what is still better, with sugar and water, a clear liquid will pass into a watch glass placed beneath the filter, in which a fibrous coagulum will be immediately formed. This coagulum is at first as transparent as the water itself, and cannot be seen except by raising it with the forceps. It, however, soon condenses, and assumes a white color. It will be readily conceived that from the short space of time that elapses before the coagulation takes place, only a trifling proportion of the dissolved fibrine can pass the filter, and that most of it will become consolidated upon the filter itself. If the sugar and water be employed, instead of pure water, to facilitate the filtration of the blood, the globules will not be dissolved, but will remain on the filter unchanged. It follows, therefore, from the results of this experiment, that the explanation of the coagulation of the blood which refers it to an aggregation of the globules or their nuclei is unfounded.

It should be observed, that this experiment cannot be made in winter, as the blood of frogs will not entirely coagulate during this season; neither can it be
Physiology.

performed upon frogs which have been kept for some time, inasmuch as the blood of recent frogs alone will coagulate in issuing from the body. In spring, summer, and autumn, however, the phenomena mentioned may be obtained by using the blood of all frogs, without exception.

The globules of the blood, as is known, are composed of colorless nuclei, and a cortical portion of a red color. The latter dissolves gradually in pure water, but not in water and sugar; and the water immediately converts the elliptic shape of the blood globules of the frog to a round configuration. — After the cortical portion has been dissolved, the nucleus remains insoluble in water, but will dissolve in an alkaline solution. To separate the red cortical portion of the globule from its nucleus, the best process is to mix a drop of acetic acid with a drop of the blood of a frog or of some other animal, and place the mixture under the field of the microscope. The red cortical portion will be immediately dissolved by the acid, while the elliptic nuclei will remain undissolved, and may be observed presenting the elliptic form which is peculiar to them in all animals in which the blood globules present that figure.

Annales des Sciences Naturelles, October, 1832.

5. Case of extraordinary Congenital Bulimia.—Anne Denise was born in 1786. From her earliest years her appetite was most voracious, requiring more than four times the allowance of other children. She menstruated at seven years of age, and, at this period all the other attributes of puberty were developed. As she grew older her appetite became more insatiable; she was dismissed from school because she devoured the food of her schoolmates; she therefore gave lessons herself, and the only reward that she wanted for her instruction was meat and bread. At this time she ate ten pounds of bread daily. She could not, however, make sufficient by her present employment, and therefore she engaged as a servant in an hotel. Several times she had been arrested for stealing loaves from bakers' shops; and at length she was reduced to beggary, as no person would keep her in their employment. She used to wander about the streets in Paris, devouring all the refuse of food which she found at different doors. A great variety of remedies had been ineffectually employed to overcome this morbid hunger. She was admitted into the La Salpêtrière under MM. Esquirol and Amussat, for relief from epileptic attacks, to which she had been for several years subject. At that time she consumed from eight to ten pounds of bread daily; she drank very little. The bowels were confined; and she had two or three attacks of haematemesis every month. Occasionally her appetite became prodigiously increased, and at these times she would devour twenty-four pounds of bread in the course of a night; she was literally mad with hunger at these periods, so that if she was thwarted, or food refused, she would begin to chew her clothes, or whatever she could get hold of. During these paroxysms of bulimia the epigastrium was found to be tender, and this tenderness was increased by pressure, and a profuse vomiting of blood generally ensued. This "grande faim" recurred only once a year, and always on the 9th of February. In the course of twenty-four hours she has been known to have devoured thirty-two pounds and upwards of food, eating and vomiting blood alternately, until she fell down quite exhausted. M. Rostan, in 1819, tried various means, chiefly antiphlogistic, with only temporary benefit. Ice was administered inwardly, and, for a time, considerably abated the fury of her hunger.

In 1828, she consulted M. Descuret, (the reporter of the case,) with the view of ascertaining whether there were any intestinal worms. He administered purgatives; several pieces of tenia were expelled. The appetite was considerably diminished, and she was satisfied with five pounds of bread, and two or three basons of soup daily; and the "grande faim" did not take place this year, and indeed did not return until 1829.

As her hunger decreased, she became intolerably addicted to the abuse of spirits, which in time brought on such a deprivation of appetite, that she would devour the raw lights of the slaughtered animals, and afterwards literally browse upon grass. In July 1828, having gone to her "favorite pastur-
Pathology.

age!! she collected a quantity of grass and butter-cups (ranunculus acris,) which she eat for supper. During the night she was seized with torturing pains of the abdomen—jaundice ensued, and she died in a few days.

Dissection.—The stomach was small; the mucous membrane of it, and also of the intestines, was inflamed in patches, but otherwise healthy, the liver was very large; the other viscera sound. The condyles of the inferior maxilla were literally worn away! For further particulars, we refer our readers to the October No. of Broussais' Annales de la Med.*—London Medical Gazette, August, 1833, p. 571.

PATHOLOGY.

6. Occlusion of the pulmonary veins by a tuberculous mass situated within the substance of the left auricle of the heart; by Dr. Townsend.—John Lackin, aged sixty-two, entered the hospital of Wilworth on the 18th of December, 1829, under an extreme state of emaciation, and dry cough, which was incessant and very troublesome. He had enjoyed good health until within a year of his admission, at which time he took cold in consequence of wearing wet clothes, and was immediately attacked with violent dyspnœa, palpitations and hemoptysis, which were subdued in the course of a fortnight by copious blood-letting. After this period he enjoyed at intervals tolerable health, but was repeatedly attacked with palpitations, difficulty of breathing, and a sense of suffocation. At the time of his admission the embarrassment of the respiration was variable. During a period of cold weather in January, he was well enough to walk in the garden, but the damp weather which succeeded, reproduced the difficulty of breathing and a sense of suffocation similar to that which attends spasmodic asthma. The pulse was one hundred in the minute, soft and feeble. The pulsations of the heart were very weak, and could scarcely be discovered with the stethoscope. They could be felt in the epigastrium, but the impulse was so feeble that it was impossible to analyse them. Percussion over the chest furnished a dull sound. The respiration was extinct on the left side, but puerile on the right, about two inches below the clavicle. Lower down it was feeble and mingled with slight crepitating râle. The patient was obliged to be propped up in bed; he generally experienced a violent accession about midnight; his forces declined, and he finally died in a state of asphyxia about five weeks after his admission.

Autopsic examination twelve hours after death.—The lungs filled the entire cavity of the thorax, adhered on each side to the costal pleura, and had the superficial air cells dilated. They were of a deep red color, furnished evident indications of fluctuation, and were inordinately heavy. On cutting into the left, a jet of blood took place as from an aneurismal sac, and at least three pounds and a half of that fluid escaped. The pulmonary veins, which gave issue to the blood were quadruple their ordinary size. In tracing the branches of these vessels to the root of the lungs, it was found that the dilatation extended uniformly from the small ramifications to the large trunks. The latter formed externally to the auricle two large pouches. The right lung presented the same alteration in a minor degree. It was found, on examining the heart, that the obstruction of the veins, their dilatation, and the consequent congestion of the lungs, were occasioned by a tuberculous degeneration of the wall of the auricle where it is entered by the veins, of nearly an inch in extent.—This mass was developed between the external and internal membrane of the heart, and so compressed the veins, that a small probe could be with difficulty passed through them into the auricle. The right auricle and ventricle were greatly dilated; but in other respects that organ was sound. The bronchial glands were enlarged and contained tuberculous matter, and some miliary tubercles occupied the lungs.—Archives Generale, from Dublin Journal of Medical and Chemical Science, January, 1833.
Pathology.

7. **Double Uterus.**—M. Moreau reported to the Academie Royale de Medicine, an account of a woman whose case he had observed at la maternite. She had a double uterus, each half of which was furnished with a fallopian tube and ovaria. The uterus was divided into two equal halves which were separated from each other by a double septum. Each portion had a neck and a distinct opening communicating with a single vagina. The woman died after being delivered of a male child, which was developed in the left half of the organ. This case completely refutes the hypothesis of those who maintain that male ovaules alone are developed in the right ovaria, and females in the left.—*Archives Generale, January, 1833.*

8. **Bilocular Bladder.**—Mr. Velpau presented to the Royal Academy of Medicine, a bladder which presented two pouches; one natural, which was large, situated behind the pubis; the other smaller, placed within the pelvis and communicating with the first by a small opening towards the left side near the trigonum vesicalis. These two sacs when full formed a prominent tumor in the centre of the hypogastric region, which disappeared when the usual pouch was emptied, but returned when it was filled with urine. Each of these cavities contained a darkish colored calculus, which could not have been extracted by the lateral operation, and could only have been reached by the high operation.—*Archives Generale, January, 1833.*

9. **Extra-uterine Conception.**—The existence of extra-uterine ovarian conception is very generally called in question; it appears even that in many cases which at first led to the belief that the fetus had become developed in the ovarium, a more attentive examination has shewn an abdominal conception; however, M. Gaussali has exhibited a cyst, that numerous anatomical appearances, have caused to be regarded as belonging really to the ovarium. This case of extra-uterine conception appears so much the more remarkable, as the fetus extracted after death by means of the cesarian section had attained to full development. Besides M. Gaussali was not able to discover the slightest trace of the deciduous membrane, a fact which contradicts the assertion of some authors, and which may be added to the two cases which have been reported by M. M. Cruveilhier and Bonnet.—*Revue Medicale, Feb. 1833.*

10. **Extra Uterine Feculation.** By Ebenezer Emmons.—I saw the person who is the subject of this notice on Saturday morning, August 15th. The account which was given to me at the time, was as follows. The patient was taken sick the Thursday morning previous, exhibiting nothing unusual in an ordinary labor, for an hour or two. Dr. Cole, the family physician, was called in at the early stage of the labor, and took charge of the case. He states, that on the first examination, the presentation was high, and out of the reach of the ordinary taxis. During the first examination, however, a violent expulsive effort brought the hand into the vagina. This sudden and unexpected change led him to vary the position of the patient, from her side, to that of a half recumbent position upon her back. During this time, the arm was brought fully and forcibly down into the vagina; and if I understood him, he was unable to return the arm, or to make any advances in turning the child, so as to deliver by the feet. Dr. Tyler, of Landsborough, was now sent for, but did not arrive till evening. After eight or ten hours had been spent in fruitless efforts to turn the child, the case was given up as hopeless.

Under the use of cordials and light nourishment, on Friday evening, the patient seemed to revive from that state of extreme prostration, under which she had been for hours. This excited hope on the part of the friends, that something might yet be done to save her from immediate death. It was at this time I was requested to visit her, but I did not see her till the morning.—I found her able to converse in a low tone of voice, but respiration, even by this effort, was considerably accelerated. The pulse was frequent and rather weak. She had had no labor pains since the exhaustion came on. I found on examination, the left hand in the upper part of the vagina; it could be passed upward rather
freely and easily; but to attempt to pass my hand by that of the child, produced much distress and inquietude, but no expulsive effort. I persevered in my attempts to gain the feet of the child for half an hour, but desisted from the necessity of the case, as she was sinking rapidly with every effort made to deliver her. Her pulse even for a time ceased at the wrist. After this she continued to sink, and expired at 5 o'clock, Saturday morning.

An examination made at the request of her friends resulted in the following discoveries:—

The child was situated in the abdomen, with its head in the right iliac region; and the face looking upwards. The left arm was still in the vagina, and the feet turned up towards, and nearly in contact with, the stomach. An opening (ulcerated?) existed in the vagina, large enough to admit the hand. The placenta was attached to the sigmoid flexure of the colon. The fetus was covered with a thin membrane, appearing now, however, only in patches. The uterus was five inches in diameter across the fundus, and was an inch and a quarter thick. The sympathies which were excited by pregnancy, probably thickened the organ instead of expanding it. The fetus was in a semi-purplid state. The intestines were dark and livid, at several points.

During the last weeks of pregnancy, the patient complained much of soreness of the abdomen, and was extremely restless, especially in a recumbent posture. Sickness at the stomach was exceedingly troublesome for the last three months.—Boston Medical Magazine, July, 1833.

11. Transposition of the Viscera. By William Hardy.—In a man who died of cholera, at the general hospital, Calcutta, there was found a complete transposition from right to left, and vice versa, of all the viscera and blood vessels of the abdomen. The liver was at the left, and the spleen at the right side; the oesophagus and cardiac extremity of the stomach were at the right side, while the pyloric end was at the left; the duodenum took its usual turns, and came in contact with the gall bladder in the left hypochondrium; the ileo-coecal valve was found at the left side, and the appendix vermiformis falling over the edge of the pelvis; the sigmoid flexure of the colon was at the right side; the aorta was at the right; the vena cava to the left side of the vertebral column; the foramen quadratum was to the left of the middle line of the diaphragm; the aortic opening was as usual, but the foramen oesophageum lay a little to the right of the aortic opening. The heart had been removed before these points were remarked, but did not appear to have been much altered in position. The renal vessels were varied in position, the left being longer, and passing behind the vena cava; the left iliac was longer than the right, and passed over the iliac veins; the right iliac vein lay to the inner side of the artery, and the left was behind its artery. This condition of the parts had given rise to no inconvenience to the individual during life.—London Medical Gazette, May, 1833.

12. New and singular variety of Hermaphroditism; being a paper read before the Royal Academy of Medicine, Paris, by M. Bouillaud. Abridged from the Journal Univ. and Hebdom.—In the course of the last year there was carried into la Pitie, a cholera patient of the same of Valmont, a widower, sixty-two years of age, by trade a hatter, and said to be given to dram-drinking. He was in the last stage of cholera when he entered the hospital, and he died on the following day.

I shall omit all that part of the post mortem examination which only related to the disease of which this person died; the monstrosity which presented itself to us (Dr. Donne was with me,) is what I particularly wish to notice.

As we had no suspicion about the sex of Valmont, who was treated as a male while in the wards, it was with no small surprise that, upon opening the abdominal cavity, we found in it a well formed uterus. We then noted the anormal state of the genital organs, and had those parts of them removed and put in alcohol which we desired to examine subsequently more at leisure, for the cholera was then raging in all its fury.
Pathology.

M. Manec afterwards requested permission to examine the parts. This gentleman's profound anatomical attainments are well known, and to him I am indebted for the following description, as well as for the plate by which the organs are represented.

In the region of the external genital organs there is a penis of middling size, terminated by a well-formed glans, and prepuce, by which it is covered. The opening of the meatus urinarius is, however, not at the summit of the glans, but towards its lower portion. The bureæ are small, but very distinct, and their integuments brownish, wrinkled, and supplied with hair, as in the natural state; they have a raphé dividing them symmetrically, and extending from the prepuce to the anus—the raphé itself being more firm and prominent than is usual in man. The bureæ contain no testicles, nor are there any vestiges of these organs discovered.

The mons veneris is more round and plump than it is commonly found in males, and it is covered with a moderate quantity of long hair, advancing along the penis, as if to conceal the latter. In the pelvis there are two ova ries, similar in their form and structure to those of a girl of fifteen or sixteen years of age. [M. Bouillaud in a note here differs from M. Manec as to the structure of these supposed ovaries, M. B. considering them not as vesicular, but rather fibrous, or as if they consisted of a sort of intermediate tissue between that of the testicles and the ovaries.] Two fallopian tubes are seen, with their attachments, as in a well-formed woman. The uterus, which seems complete in every respect, holds its usual place between the bladder and the rectum, and opens into a species of vagina, to be described presently. The cavity of the uterus has the aborescent wrinkles which are observed in women who have had no children. The os inæcis projects into the vagina, as in the normal state. The vagina about two inches long, and of middling compass, presents the rugæ very conspicuously which are peculiar to virgins.—Towards the neck of the bladder the canal contracts; and about the membranous portion of the urethra it is converted into a narrow duct, which from below upwards opens into the urethra by a little orifice about two millimetres in diameter, so that the urethra becomes in fact a continuation of the vagina.—There is nothing remarkable about the urethra beyond the point of junction; it is exactly that of the male—having even at its origin the appendage of a regularly-formed prostat. There are also the verumontanum, and the prostatic follicles present, but no trace of openings to the ejaculatory ducts could be found. Beyond the prostate the urethra is destitute of external covering for eight or ten lines. Farther on a spongy tissue, with a bulbous enlargement, becomes connected with the canal, accompanying it to its extremity, where it is lost in forming the glans. All this spongy portion is attached to the corpora cavernosa, which, strong and well-marked as in the male, are strengthened at their root by a muscular apparatus as complete, and perhaps even more efficient than in the male. The bulbo-cavernous muscles, in particular, are very long and thick. Cowper's glands are present also, as in the male sex.

Like the testicles, the vesiculae seminales, and vasa deferentia, are completely wanting. From the inguinal ring nothing more than a dense cellular cord—a rudiment of the round ligament—proceeds, accompanied by a nervous thread and an artery. The volume of this artery is considerable, and it communicates by large anastomoses with the superficialis perinei, and the branches of the external pudic. The external female organs are altogether wanting.

With regard to other points connected with the general structure of this extraordinary individual, and perhaps scarcely less striking than those of the genitals, so well described by M. Manec, I may observe that the body of Valmont, very diminutive for a male, presents a degree of plumpness and rotundity which gives it much of the appearance of a female. The hands and feet are small, and more like those of a woman than of a man. The pelvis is shallow and wider than it would be in a well proportioned man. The face is furnished with a scarcely thick beard, yet its general aspect is effeminate, and, per-
haps owing to its equivocal character, rather repulsive. There is an abundant supply of fat lining the pectoral and abdominal cavities. The mammary glands are much developed—too much, indeed, for a man, and yet too little for a well-formed woman; the nipples are of the size usual in healthy females.

Looking to the general conformation and volume of almost all the other parts, we should say that this individual maintains a sort of justus-militie between man and woman. The heart, however, was nearly as robust as that of a man of middle size and strength.

From Valmont's own account given upon entering the hospital, it appears he was a widower. Thus an individual, with the essential organs of a female—though with the external resemblance of those of a male—had been placed in the condition of a husband! Having a womb, did he menstruate? or rather, did he exhibit the phenomenon of being affected with haematuria regularly once a month? But if, as our most famous physiologists have stated, the fact of being endowed with certain parts indicates the exercise of certain functions, why need we waste time in calculating what must have been the conduct of Valmont? We cannot help thinking, however, that this extraordinary being must have found himself curiously circumstanced. Did the passions of the male, or those of the female predominate? Did they alternately stimulate him? or was he neutralized by the equal influence of each?

It has been said that, propter uterum solum mutier est id quod est. How does the maxim hold with respect to Valmont—a reputed man—and a married man?

In a practical point of view, it might be asked, how should we be able to say, from simple inspection of the exterior, that such a person as Valmont was really an hermaphrodite? Have we the means of forming a diagnosis? The problem is no doubt a difficult one, yet even in the absence of further facts, we might probably venture to affirm a priori, that where an individual, as in the case just cited, has a penis moderately (médiocrement) developed, without any trace of testicles either in the scrotum or inguinal regions, and where, considered in other respects, this individual would seem to hold a middle place between male and female—in such a case, I say, one might venture to affirm, that there are in the interior of the body some of those organs peculiar to the female, and constituting in so far an hermaphrodite more or less complete; and our decision would be greatly corroborated, if it could be ascertained that such an individual had, during a certain period of life, a monthly discharge of blood, or menstrual fluid, from the urethra.

In conclusion, the facts contained in this paper will probably remove all doubt as to the existence of real hermaphroditism, however incomplete. It is now, we should say, no more than fair to admit that individuals of the human race may be found, who partake at once the male and female type in respect to their genital organs, and, with reference to the other organs common to each sex, present a sort of mezzo termine between man and woman; a variety of hermaphroditism which does not seem to have sufficiently fixed the attention of teratologists. Those who deny the existence of, all other varieties except that to which they have given the name of pseudo-hermaphroditism, will charge us, no doubt, with a credulity amounting to superstition, for having, even in Valmont's case, admitted the existence of a particular kind of true hermaphroditism: but such a charge will affect us little. We must believe that of which we are persuaded, even though it were a miracle: and, perhaps, of all superstitions, (if we may be allowed the term in speaking of natural science) that is the most worthless, not which believes what does not exist, but which refuses belief to what really does. To conclude in the language of a learned professor: "In matters like the present, which are at variance with received opinions, it is the part of wisdom not only to refuse acquiescence in what has not been rigorously proved, but not to fix too narrow limits to the powers of nature."—Lond. Medical Gazette, May, 1833.

* M. Dupuytren, in a report on a human fetus found in the mesentery of a boy of 14.
THERAPEUTICS.

13. On the employment of the Marchantia Hemispherica in Dropsy. By Thomas Short.—The marchantia belongs to the natural order of hepatic mosses. It grows abundantly in damp shady places, and on the banks of rivers. Though, to be found at most seasons of the year, it is most luxuriant in autumn. Mr. Short, who seems to have had extensive opportunities of testing its efficacy in hydropic affections, represents that he has obtained from it very surprising results. He has not derived much benefit from its administration internally, but in form of poultice its effects have been highly gratifying. Two handfuls full of the fresh plant, previously washed, are thrown into a vessel containing a pint of boiling water, and simmered near the fire for twelve hours, more water being added from time to time if necessary. The plant is then reduced to a pulp, and made into a poultice by the addition of lisseed flour. These poultices are applied to the abdomen, and also to the extremities in cases of anasarca. They occasion a free transpiration from the skin, and determine a copious secretion of urine. In delicate and enfeebled individuals, considerable prostration is sometimes induced, to relieve which, Mr. Short employs moderate doses of nitrous ether. To encourage the favorable operation of the remedy on the kidneys and skin, he prescribes mild dilute drinks of chicken water, &c. warm clothing and confinement to bed. He subjoins, that the cases in which the marchantia has succeeded best, are those which have for a long time resisted other modes of treatment, and in which the urine is high colored, and deposits a copious sediment. It is also useful where the urine coagulates by heat.

Mr. Short reports eight cases treated by the cataplasmis of marchantia.—The first had been ineffectively treated with mercurials, acetate of potash and other diuretics. The poultices were applied, and their action on the kidneys became manifest during the first night. During the nine days which succeeded, 74 pints of urine were discharged. The applications were continued eighteen days, during which period 196 pints of urine were discharged. They were then omitted eleven days, and again renewed and continued at intervals for the space of a month, at the end of which time the patient was cured, having voided in that time 256 pints of urine.

In the second case, 250 pints of urine were voided, and a cure was accomplished, notwithstanding a variety of remedies had been previously employed in vain.

The subject of the third case, who was intemperate, passed, within the space of twenty-seven days, 369 pints of urine, and was discharged cured.

In the fourth case a cure was accomplished by the marchantia, and on two occasions, during the existence of the disease, a total suppression of urine which rebelled against the ordinary means was relieved by the cataplasmis. The remedy was equally efficacious in the fifth, sixth, seventh and eighth cases.—Edinburgh Medical and Surgical Journal, January, 1833.

As the marchantia hemispherica may not be known to many of our readers, we subjoin the following botanical description, by which it may be easily recognised.—Ed.

Marchantia Mich.—Common receptacle of the fruit pedunculated, peltate, bearing beneath shortly pedicellated pendant capsules opening at the extremity with about eight teeth, and filled with seeds and spiral filaments. Anthers, (?) oblong, imbedded in a flat, carnose, sessile or pedunculated, papillary disk. Gemmae, abundant in this genus, on the frond, lenticular, contained in variously shaped receptacles, and germinating even while on the parent frond.


M. Hemispherica. Linn. Receptacle of the capsules hemispherical cut at the margin into four—ten equal lobes, that of the anthers pedunculated with a thin margin, frond with large cells and pores.—Hooker’s Brit. Flor. vol. 2, part 1, p. 104.

Six species of marchantia have been determined as belonging to North America, of which the hemispherica is one.
14. Case of Elephantiasis cured in seven days. By Dr. Graff.—A young man, aged twenty-one years, affected with elephantiasis from childhood, who had consulted a number of distinguished physicians, and employed a variety of remedies without success, fell under the care of Dr. Graff, presenting the following condition. The face presented some red colored spots, the scalp covered with adherent scales and incrustations, and other parts of the body with a greyish brown colored scaly skin, as hard as leather. This diseased skin seemed to consist of a degeneration of the epidermis. It was insensible, of unequal thickness, and presented at different points, especially in the vicinity of the articulations, a number of cracks or fissures, through which the natural skin could be perceived of a fresh and red appearance. These fissures were attended with an itching burning sensation. Dr. Graff, directed confinement to bed for six days, ten grains, three times a day, of ethiops antimon internally, and frictions on the whole surface of the body, night and morning, with black soap, incorporated with red precipitate, in the proportion at first, of six ounces of soap and four ounces of precipitate, and subsequently, of four ounces of soap and two of precipitate. No change was manifest on the first day: on the second and third softening of the skin, and augmentation of sensibility with smarting of the fissures. On the fourth, fifth, and sixth days, there was considerable desquamation of the skin. On the seventh day a bath was directed, containing a small quantity of green soap, and frictions were made while the patient was in the bath, with the hand and with a soft sponge. This removed the greater part of the degenerated cuticle, and what remained was detached in a second bath. Three months afterwards, the skin still maintained its healthy character, except upon the sides of the thorax and abdomen, where the degeneration had been the most considerable. At those points some dryness and inequality remained, but no alteration of color.—Archives Generale, from Heidelberg. Klinische Annalen, 1831.

15. Prophylactic virtue of Belladona, against Scarlatina. By Hillekamp. During the prevalence of an epidemic scarlet fever, 120 children from one to six years old took belladonna regularly; twenty or thirty irregularly; and twenty-five or thirty did not take it at all. Of the first, five contracted the disease; of the second eight; of the last eleven. Dr. H. employed a solution of two grains of the extract of belladonna in an ounce of canella water, of which one drop was administered night and morning for every year of the child's age.—Of the children who died of the epidemic, none had taken the belladona.

Hufeland's Journal, March, 1831.

SURGERY.

16. Strangulated Hernia with perforation of the intestine in which the latter returned into the cavity of the abdomen.—M. Velpeau had occasion to operate on a woman at la Pitié for strangulated hernia with which she had been affected for five days before her admission. On opening the sac he discovered a fold of intestine as large as an egg, of a black color, and presenting three small perforations, with the mucous membrane slightly protruded and everted at their edges. A reddish colored fluid mixed with feces escaped through these openings when the tumor was pressed, and a probe introduced into one of them entered the intestine. While M. Velpeau was preparing to attach the intestine to the edge of the wound by means of a ligature, it slipped into the abdomen. He conceived that it would be dangerous to attempt to seek it, and therefore, preferred trusting it to itself. No bad consequences ensued; the course of the feces was re-established, and the case terminated favorably.—M. Begin reported a similar case to the Academy which had an unfortunate issue. The intestine was not perforated, but exhibited three small greyish colored spots. It was returned, the course of the feces was re-established, but on the third day stercoraceous matter made its appearance at the wound, peritonitis ensued, and the patient died. This case, M. Velpeau thinks is not a parallel to that described by him. In the one there was perforation from ul-
ceration: in the other gangrene, and death took place from a separation of the sloughs.—Archives Générale, April, 1833.

17. The treatment of varicose veins by obliteration.—M. Davats proposes for the obliteration of varicose veins to develop a slight irritation of two opposite points of the internal surface of the vessel, and to maintain them in opposition with each other. A simple sewing needle, either straight, curved, flat or round will suffice for this purpose. To effect the obliteration, the vein is transfixied with the needle from before backwards, then directing the point upwards it is again passed through the posterior and anterior walls somewhat higher up and brought out in front; it is confined in its situation by means of a common twisted suture.

The following experiment will illustrate the principle proposed. The neck of a dog was constricted by a ligature placed near the clavicle, so as to produce a fullness and distension of the external jugular vein. The vessel with the integuments were then pinched up between the thumb and finger, and a needle was passed beneath the vein. This was designed to be merely preparatory. A second needle was then pushed perpendicularly through the skin, the anterior and the posterior walls of the vein, and the point then inclined upwards, so as to perforate in the contrary direction the posterior and anterior walls of the vessel and come out in front through the skin. A ligature was then wound upon the needle in figure of 8 to prevent it from being rubbed out of its situation by the animal. This ligature was removed on the fifth day, and the needle dropped out as it were of itself. The small wound was healed in a few hours. Fifteen days afterwards, the same operation was performed on the jugular of the opposite side, and with the same results. The animal was then killed. The left external jugular was found completely impervious, and transformed into a white, round, filiform chord analogous to ligament.—

The obliteration extended upwards and downwards from the transfixied point to the collateral vessels which were sufficiently dilated to maintain the circulation. Beyond the extent of the obliteration the aspect of the vein was healthy. The vessel of the opposite side was likewise obliterated. The same experiment was performed upon six other dogs and with similar results. None of them experienced any uneasiness, and in all of them the obliteration was accomplished when the ligature and needle were not removed before the proper consolidation had taken place.

On another dog two needles were placed upon the jugular two inches from each other, so as to leave the intervening portion of the vein filled with blood. One needle dropped out on the fourth: the other on the sixth day. The coagulated blood was absorbed, and the obliteration of the vein was found perfect.

With the view of determining if simple compression would be sufficient to effect the desired purpose, a needle was passed through the integuments and beneath the jugular vein, and a ligature twisted over it in the figure of 8.—Considerable inflammation, suppuration, and other disagreeable consequences ensued, and in several instances no closure of the vessel was effected.

These principles deserve to be applied to the treatment of varices, and if the same results be obtained on the human subject, M. Davats will have rendered an important service.—Archives Générale, May, 1833.

18. Exirpation of a degenerated ovary, by Dr. Ehrhardtstein.—Agathe Duerr, a healthy peasant, aged 81 years, had been favorably delivered four times. Towards the conclusion of her fifth term of gestation the abdomen became so much enlarged that it was supposed she carried twins. She was, however, only delivered of one female child, and the abdominal tumor merely subsided partially. Five days subsequent to this, Surgeon Ritter was consulted, who found the abdomen largely, but uniformly tautened, and presenting evidences of fluctuation. In the left iliac fossa a hard tumor could be felt, but its character could not be determined on account of the swelling.—Ritter supposed that there might be an extra uterine fetus. Fourteen pounds
of serosity were evacuated by paracentesis, after which he discovered an indurated mass into which he plunged the trocar, and drew off twelve pounds more of water. It was then ascertained that the tumor was formed by a diseased ovaria, and extended from the right ilium to within a small distance of the umbilicus; it presented a hard uneven surface. Ritter resolved upon extirpating this mass, which he did eighteen weeks after the accouchment. The skin was incised over the rectus muscle; this muscle was then divided, and its lower part detached from the peritoneum, and an incision made through that membrane large enough to admit the hand. Some difficulty was experienced in detaching the tumor from its surrounding attachments, but this was finally effected, and at the expiration of fifteen minutes it was withdrawn from the abdomen after having applied ligatures to three blood vessels. A twelve tailed bandage was immediately applied, sponges immersed in cold water were laid over the wound, and the extremities were enveloped in warm flannels.—At the expiration of an hour the bandage was removed, and the wound had contracted one-third, but a portion of the omentum was found protruding.—The latter was reduced, the edges of the wound closed by sutures, and the bandage re-applied. On the day after the operation the patient was affected with repeated syncope, succeeded towards evening by rigors and a feeling of suffocation. It was discovered on the following day, that contrary to the advice of her physicians, she had continued to nurse her child up to the period of the operation. It was now directed to be again applied to the breast, which occasioned a subsidence of the symptoms. But the secretion of milk ceased; a violent fever continued from the third to the eighth day, and she was affected with great oppression, extreme prostration, tension and tenderness of the abdomen, involuntary digections by stool, paucity of urine, facies Hippocratica, insatiable thirst, bilious vomiting, anxiety and delirium. An insurmountable disgust precluded the employment of internal medicines; fomentations of warm vinegar, however, which were renewed every two hours, provoked a free perspiration by which the patient was much relieved. A considerable quantity of bloody serosity was discharged from the wound on the eighth day, and she recovered her senses. The escape of a large quantity of gas was followed by a mitigation of all the symptoms. (Fomentations to the abdomen, enema.) The discharge from the wound continued on the ninth day, and ceased on the twentieth. A marked amelioration in the meantime took place, and the sutures were removed. On the eleventh, a lacentous discharge took place through the small openings left by the sutures which continued to the ninth week after the operation. During this time all the unpleasant symptoms subsided, and by the ninth week the wound was cicatrized. The tumor weighed twelve pounds. It was covered by a kind of lardaceous membrane somewhat tenacious in its character, composed of several layers. The body of the tumor consisted of spherical portions of a lardaceous consistence and of variable dimensions, some of which were excavated and filled with serosity. The orifices of the vessels which had been tied, were as large as a writing quill. On the side which corresponded to the ilium, two pouches were discovered, in which the serosity had been contained which was evacuated by the paracentesis.—Arch. Gen. from Med. Jahrbücher des K. K. Oester. Staates. T. 2. Cap. 2.

19. Employment of a decoction of belladonna in a case of rigidity of the neck of the uterus, by Dr. Ricker, Director of the Institution for the instruction of Midwives of the Duchy of Nassau.—A woman of nineteen years of age, small and of robust constitution, had menstruated regularly, although their appearance had always been preceded by acute pains about the sacrum. In the spring of 1829, she became pregnant. In the afternoon of the first of January, 1830, I was called; she had been suffering since the preceding night violent labor pains. The vagina was not distended, and there was an absence of the usual secretions. The neck of the uterus had not descended, was entirely effaced; the inferior walls of the uterus were so thick that it was difficult to feel the head.
The os uteri was a quarter of an inch thick, was rigid, and gave the sensation of cartilage to the touch. It was difficult to introduce therein the extremity of the fingers; fomentations were directed to the vulva, and a sponge steeped in a decoction of chamomile was applied to the neck of the womb. The next day, January 2d, the parts remained in the same condition; a bleeding of twelve ounces was had recourse to; the contractions of the uterus were less painful, and in the evening the mouth of the womb had a diameter of an inch; it was natural to expect that the dilatation would increase, but the next day, January 3d, there was none perceptible. It was determined to anoint with an unguent of lard and extract of belladonna, but all remained in the vagina, and the extract could not be applied upon the os uteri. Then a decoction was made of two drachms of the leaves of belladonna and of mallows, and four drachms of linseed; a sponge steeped in this decoction was directed towards the neck, and renewed every half hour. After three hours employment of this treatment, the neck was enlarged to three inches and a half; but as the head advanced very slowly, the forceps was applied after the lapse of some hours, and a vigorous and well formed child was extracted. This case appears to be interesting in two respects: first, it confirms an important point of practice,—the efficacy of belladonna in a case of rigidity of the os uteri; and afterwards it removes a difficulty which has been experienced of applying to the neck the extract of belladonna. In whatever way we may set about it, the walls of the vagina retain every thing, and the finger conveys none of the extract to the orifice of the uterus; this form of using belladonna removes the difficulty although it is natural to believe that the decoction of belladonna acts less powerfully than the extract; it would be better perhaps to use an instrument invented by M. Siebold, and intended to convey the unguent upon the neck of the uterus.—R. sue Medicate, Feb. 1833.

20. Absorption of the Placenta.—Professor Naegel, reports the case of a female who had been three times favorably delivered at the full term of uterine gestation, but, who in her fourth pregnancy had a premature labor brought on by mental emotion. The child was dead, and was sixteen inches in length. The secundines remained within the uterus, and were attached to the right inferior part of its cavity. Neither hemorrhage or pain succeeded. Ergot, in doses of fifteen grains, was given every hour without any benefit. The uterus was contracted to the size of the fist; the patient was comfortable, the lochial discharge was red, and without any disagreeable odor, and the mouth of the uterus was so closely contracted as not to admit the tip of the finger. During the exploration of the parts, the umbilical cord, and an elongated fragment of the membranes were detached and extracted. The ergot was continued for some time, but finally abandoned on account of the disgust it occasioned. The patient experienced no pain, and nothing escaped from the vagina. On the night of the fourth day a slight milk fever declared itself; the lochia continued in moderate quantity, pale and without disagreeable odor; the orifice of the uterus closed, and she improved progressively. Seven weeks afterwards the menses re-appeared, and they recurred subsequently at three periods, after which she again conceived. She was finally delivered, at the full term, of a living child, and the after birth soon followed.—Archives Generale, from Heidelb. Klin. Annalen, 1831.

21. Case of hemorrhage of the uterus, arrested by compression of the descending aorta.—by Doctor Loewenhard, of Plessau.—Guided by theoretical views, Ploqueut was the first to advise compression of the descending aorta, in cases of hemorrhage of the uterus. Walter, James, (London Medical Repository and Review, 1825 and 1829,) and Ulssamen, insist upon the excellence of this method, and cite, in support of it, examples drawn from their own practice. In France, M. Baudeloque has contributed the most to make it known, in associating its use with that of spurred rye internally, in cases of hemorrhage produced by the separation of the placenta. The following case appears so conclusive, that we do not hesitate to offer it to our readers. The combination of many energetic means ought to be resorted to only in cases in which alarming floodings threaten to
terminate the life in a few moments. A woman of thirty-two years, of a delicate
complexion, was delivered on the sixth June, at twelve o'clock, of a fine child.
Instead of the placenta, the midwife observed a stream of blood augmenting
constantly in volume. She endeavored to detach the placenta and stop the ha-
morrhage; but in vain. At half past four, consequently five hours and a half
after the commencement of the flow, the reporter was called. The patient re-
ssembled a corpse; the face was pale and cold, as well as the hands; the pulse
searcely perceptible; speech unintelligible; the blood flowed in such abundance
that the umbilical cord could not be seen hanging from the vagina. The hand
was immediately introduced into the womb, and as the aorta beat forcibly, (a fatal
sign in hemorrhage) the reporter compressed strongly this artery against the ver-
tebra column; the blood ceased instantly to flow; at the same time, the midwife
threw injections into the vagina of vinegar and water; and the patient took occa-
sionally a spoonful of the following mixture:

Recipe.—Water acidulated with hydrochloric acid, oz. j.

Tincture of catechu,
Tincture of digitalis, st. oz. ij.

At the end of a quarter of an hour, it was attempted to detach the placenta,
which proved a tedious process, because, at first, the blood flowed as soon as com-
pression was removed; then, because the patient felt severe pains, and the uterus
beginning to contract; rendered the operation difficult. The separation was finally
effected, and the hemorrhage successfully arrested. The patient was recovered
as to be able to nurse her child.—Journal de Siebold.

A similar case occurred in the Hospital of St. Louis. After vain efforts to de-
tach the placenta, the aorta was compressed externally above the umbilicus, and
thirty grains of spurred rye were given to the patient. The cessation of the
hemorrhage was not as prompt as in the preceding case; but, instead of flowing
in a full current, the blood now formed a thread-like stream. The action of the
spurred rye was felt at the end of twenty minutes after the placenta was expelled,
and the hemorrhage ceased. It was time, for the patient was dying. She left
the hospital at the end of fifteen days. It belongs to experience to decide between
the two modes of compression; the one, external, through the abdominal walls;
the other, internally, of the uterus and through its posterior parietes. However,
we may, a priori, and according to the anatomical relation of the parts, decide in
favor of the first method. At the first trial, it may appear difficult to reach the
aorta through the abdominal walls; this is, however, not the case. After the ac-
couchement, the two anterior recti muscles of the abdomen are separated several
inches; the muscles themselves are attenuated and spread out, so that the abdom-
nal wall is formed along the whole length of the lines alba, only by the skin,
the aponeurosis, and the peritoneum; the compression is made very exactly, and
with the greatest facility. Whilst this compression is being executed, the vagina
remains free, and we may, if desirable, cause the hand of an assistant to be intro-
duced for the purpose of detaching the placenta, or to make injections, &c.—
Through the uterus, the operation is difficult, because the hand is compressed
and cannot be placed in the most convenient position to act efficaciously. Instead
of compressing the aorta perpendicularly, the hand is obliged to act under the
disadvantage of a horizontal position, which is very fatiguing.—Revue Medicale,
February, 1833.

CHEMISTRY.

22. New Process for the Reduction of Arsenic.—M. P. U. Boutigny announces,
that he has so improved his process for the reduction of arsenious acid, as to be
enabled to detect the 1-128th of a grain, and to recognize the chief properties of
this body in this almost imperceptible quantity. This process is the following:

The metallic crust having been obtained in a tube, in the usual manner, the
tube is cut off a short distance below the closed end. Two drachms of distilled
water and two drops of chloric acid are then introduced, and the opening being
closed with the finger, the liquid is boiled for about a minute, or until the arsenic
has disappeared. During this operation, the chloric acid parts with its oxygen
Chemistry.

to acidify the arsenic, which dissolves in the water, and the free chlorine remains dissolved in the same liquid. The solution is filtered, if necessary, and a few drops of highly concentrated hydrosulphuric acid is put in. An immediate precipitate of yellow sulphuret of arsenic is the consequence. This may be dissipated by the addition of two drops of aqua ammonia, and re-produced by a few drops of hydro chloric acid. In this case, the precipitate is allowed to collect at the base of the tube, and the liquid withdrawn by means of cotton wick previously wetted. Upon the collected precipitate a single grain of iron filings is placed. I then sealed it, and heated it to redness. The arsenic is volatilized, and the alliuaceous odor, familiar at once to the chemist, given out. These characteristics the author thinks sufficiently indicative of the presence of arsenic: at all events, nothing but arsenious acid possesses these remarkable properties combined.

In a note, M. Boutigny recommends that the last experiment be performed in a room where there are no currents of air; and he employs, for the purpose, a small crucible filled with burning charcoal, in the midst of which he places the small tube containing the sulphuret and iron filings.—Jour. de Chimie Medicale.

At the sitting October 8th, a memoir, on the comparative endosmose power of certain organic liquids by M. Dutrochet, was presented. In the course of his experiments the author ascertained the singular property which albumen has of being dissolved or precipitated by the same liquid, in proportion to the degree of concentration. In this respect, water appears to act as a weak acid. By a number of comparative experiments he ascertained the relative endosmose force of several organic substances to be as follows.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Endosmose Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gelatinous water</td>
<td>3</td>
</tr>
<tr>
<td>Gum water</td>
<td>5.17</td>
</tr>
<tr>
<td>Sugar water</td>
<td>11</td>
</tr>
<tr>
<td>Albuminous water</td>
<td>12</td>
</tr>
</tbody>
</table>

He adds that his experience, has proved that endosmose is one of the chief vital actions of vegetables. It is highly probable that it is equally so of animals.

This is readily conceivable, when we call to mind that among the latter, the excitability is extreme in those organs, which are essentially albuminous (the encephalon and nerves,) and that it is weak and obscure in those organs which are essentially gelatinous (the bones, cartilages, tendons, &c.) As regards the skin, which is chiefly gelatinous, its vitality is established as due to the nerves, and consequently to albuminous organs, which in it are associated organically with parts of a gelatinous nature. May it not be possible, that the considerable difference, which exists between gelatine and albumen, as regards their endosmose power, is the source of certain physico-vital phenomena, resulting from the organic association of these substances.—Idem.

At the request of Dr. Lessere, M. Lassaigne has investigated the composition of a paste employed in cauterising the skin for opening an issue. This analysis led him to submit the following preparation as a useful substitute for that purpose.

- Take of wheat flour 20 parts.
- Olive oil 7 do.
- Radical vinegar 20 do.

The preparation is readily made by mixing the oil and flour in a glass mortar, and when thoroughly mixed, adding the acetic acid gradually, until the whole is well combined. It is then slightly colored by the addition of vermilion, and must be preserved in well stopped bottles, to prevent the evaporation of the acetic acid. To employ this caustic, a small hole is pierced through a card, and the paste applied to the skin over the hole. The effect is generally produced in a short time.—Idem.
American Intelligence.

Case of Ivory Exostosis, by Richard Barnum, M.D. of North Carolina.—The interesting tumor represented in the accompanying cut, occurred in the person of Edwin Doran, of North Carolina, and fell under the observation and treatment of our friend, Dr. Barnum, who has kindly furnished us with the following facts in relation to the case:

In March 1829, the patient had complained of symptoms indicating polypus of the right nostril, for which, several quack remedies were used, in spite of which it entirely disappeared by the month of October.

About the first of April, 1830, the first manifestation of the present tumor was observed. A few days previous to its appearance, he had complained of a violent pain in the head, attended with considerable fever. The first appearance of the tumor was near the centre of the frontal bone, close to its suture with the nasal bones, whence it spread itself in every direction, but particularly along the superciliary ridge. About the 1st of May it became very painful, and had then arrived at nearly its present size.

Soon after this period, several paroxysms of convulsions, followed by coma continuing for several days, gave evidence that the tumor had begun to inflict serious irritation upon the brain.

An operation, the object of which was the extirpation of the tumor, was therefore undertaken by Dr. Barnum and other gentlemen, on the 1st of June. The complete extirpation of the tumor was found absolutely impracticable, its substance having the hardness of the firmest ivory, and its base every where
incorporated with the bone. By repeated applications of the saw, however, a large portion was removed, of about three inches in diameter at the base, and an inch and a half in height. After the operation, the patient was roused from his state of stupor, and no more convulsions occurred, this favorable change probably being wrought by the loss of blood and counter-excitement produced. Consciousness was perfectly restored; but, in the summer of 1831, the left eye became amaurotic.

In September 1832, the smaller tumor made its appearance on the right eyelid, and, in about ten days, suppurated and discharged. It then closed and again filled and discharged, and this process has been repeated twenty successive times, pus mixed with blood being usually discharged; but sometimes pure blood,

This tumor was an instance of hyperostosis, consisting, according to Otto, "of an ivory-like, healthy bony mass, which as it were, exudes from the surface of the bone and then coagulates." Probably only the surface of true bone was changed in its texture.

The portion of the tumor in our possession, has the hardness and whiteness of ivory, but not its weight.

Mr. Wilson speaks of this variety of exostosis, as often adhering to the bones of the skull of some quadrupeds, an excellent specimen of which he has seen in the skull of an ox. It has also been noticed by Hunter and other authors, and described by Van der Haar under the name of osteocirrhia.

The subjoined wood cut represents the appearance of the individual some time subsequent to the operation.

Practical observations on Hernia, more especially as regards the safest and most certain mode of reducing it when in a state of strangulation. By Ennalls Martin, M. D. of Easton.—Every person, whether male or female, is more or less liable to hernia from their birth. Viewing the subject anatomically, it is rather astonishing, that more persons are not afflicted with this malady, and more especially that of inguinal hernia, than really are, notwithstanding some surgical writers have supposed, that one sixteenth of the human race are actually laboring under this complaint. Perhaps, this proportion is too great, yet we may not err, when we lessen that proportion one-half, and make it one thirty-second of the whole human family. Nevertheless, under these circumstances it is a matter of great astonishment, that strangulated hernia so seldom occurs, and when it has occurred, our astonishment is vastly increased, that surgeons should have been so badly informed as to the safest and best mode of reducing it. Mr. Edward Geoghegan, of Dublin, has done more to reasonably explain the mode of reduction of strangulated hernia than any other surgeon has ever done before his day. Before he undertook to explain his mode of reduction, I confess, I had experienced great uncertainty in relieving the patients, who came under my attention. As in every thing else, so in the reduction of hernia there are many wrong ways, and but one right and correct way of proceeding to reduce strangulated hernia. I have recently compared this method to the discovery of the circulation of the blood by the celebrated Harvey. Will it be said, this is comparing small things with great? Be it so; but this much may be said, that a want of knowledge of the circulation of the blood never endangered the life of a patient in the hands of the most ignorant bleeder, when its abstraction became necessary, but a want of knowledge of the right way of reducing hernia has proved fatal to thousands, when under the most learned and skillful surgical direction from the earliest to the latest period of time.

I do not pretend to say, that every case of strangulated hernia may and ought to be relieved by Mr. Geoghegan's method of reduction, though any other surgeon may have improved upon his method; but this much I will venture to assert, that where the gut only is strangulated, there is almost a certainty, that it may be reduced with the greatest certainty. I do not pretend to go any further upon the subject of hernia, than to give some explanation of the mode of relieving the strangulated intestines. If the omentum should
come down with the intestines, there is no doubt, that it might increase the
difficulty of reduction, or the intestine might be adhering to the sack, which
would create another difficulty, as in that case, the presumption would be, in-
flammation had taken place.

I would not say, that nothing ought to be done before reduction is attempt-
ed, but this much I will venture to advise, that if the surgeon is called in very
shortly after the strangulation has commenced, there ought to be no hesitation
about commencing the reduction by the taxis, unless the patient should have a
fever; in that case a large portion of blood ought to be abstracted, and the
cold bath might be used as Mr. G. directs. The method I use, is this. I place
the patient in a recumbent position, with the knees drawn up, and his body
with the shoulders, drawn towards the pelvis so as to bring the intestines down
towards the pubis, then I grasp the tumor with both hands, or if it is very
small, with my fingers, then instead of shoving up the tumor towards the ab-
dominal ring, I gently pull down the contents of the tumor, and if possible,
the included intestines; thus removing the obstruction at the ring, when by
gentle, but steady compression, the air is forced out of the intestine, and the
strangulation will be instantly relieved. By this method I have never failed
to reduce strangulated hernia, except in one instance, and in that case, the
tumor was so large, that I could not keep up a regular compression long
enough, and besides all that I had not sufficiently understood the necessity of
pulling down the tumor as now directed. Sometime after this had happened,
the patient having died of mortification, I had two other cases of very large
scrotal and inguinal hernia, the latter being a case in a female, I determined
on tying a handkerchief around the tumor, and thus keep up a regular com-
pression, which succeeded to admiration.

Sometime after these occurrences I forwarded to the Editors of the Medi-
cal Recorder, of Philadelphia, for publication some observations on hernia,
which embraced Mr. Geohegan's method of reducing strangulated hernia,
which, it would seem, did not meet with their approbation, as they declined
its insertion in the Recorder, more especially on account of the novel method
of reduction by tight bandages as just described, for they observe, "we ad-
vice our correspondent from Maryland, to put to further trial this mode of re-
ducing strangulated hernia, and if more extended observations should san-
tion its usefulness, we shall be glad to publish it."

A recent case of scrotal hernia came under my notice, which had defied the
skill of a young practitioner of some merit, after trying the taxis secundem ar-
tem, having before that used injections of different kinds, besides bleeding
freely, and administering large and repeated doses of laudanum: all which re-
medies having failed, I was called in. Having inquired of the Doctor, whether
he had any knowledge of Dr. Geohegan's practice, he replied in the negative.
I then undertook to explain to him the whole matter, observing at the same
time, that if I did not succeed in a few minutes by the taxis, I should not suc-
ceed at all.

Having placed the patient in a proper position, I commenced the operation
of reduction, which was effected in less than half a minute to the great astonish-
ment of the Doctor, as well as a number of the patient's neighbors, who seemed
to have come to see him go off the stage of life! It was then I observed, the
circulation of the blood was a mystery, until Dr. Harvey explained what is now
so simple and so easily understood by all who will take the trouble to see it de-
monstrated.

Before Dr. Geohegan had explained what now seems to me so simple and so
easily understood, I had failed in reducing strangulated hernia in several instan-
ces, and have had recourse to the operation, always with success, but in other
cases mortification had taken place, which might have been prevented by such
knowledge as I am now in possession of, and I am further confident, in every in-
stance where the operation has been performed by me, the strangulation might
have been relieved by the taxis.

Easton, Md. July 25, 1833.
Interesting Galvanic Experiments, by John R. W. Dunbar, M. D. of Winchester, Virginia.—Negro Ben, the subject of these experiments, aged 26, was a stout, well built subject, the muscular tissue of the body remarkably well developed, indicating great power. He was suspended from the gallows about thirty-five minutes, and in ten minutes after being cut down was delivered to a professional friend by the sheriff for me, and brought to a room (where every thing was arranged for the experiments) which had been liberally granted by the mayor, adjoining the town hall. The body was immediately placed on the operating table. The acid mixture (dilute muriatic acid) was thrown on the plates as soon as the conveyance bringing the body appeared in sight. It was discovered from the unusual freedom of motion in the neck, that it was dislocated—or, as it is called in common language, the neck was broken; and upon cutting down in a subsequent stage of the experiments, it was satisfactorily ascertained that the first and second vertebrae (atlas and dentata) were separated by a space sufficient to admit the end of the little finger. The appearance of the face was quite natural, and seemed as if the unhappy subject of the justly offended law had passed from life with none of those struggles and dreadful agonies which attend the throes of dissolution, and particularly in this most horrible mode of causing death.

The experiments were now commenced by a gentleman to whom was assigned the anatomical part, exposing, by a very handsome dissection, an important nerve in the neck, which supplies the nervous power to the lungs and stomach (par vagum, or pneumogastric.) A long silver needle, similar to those used in acupuncture, was now introduced, through the space between the ribs, deep into the substance of the heart. The object of introducing a needle into the heart was to endeavor to ascertain whether any irritability remained; and to attempt to throw some light on a disputed question, whether the heart was susceptible of excitation by the galvanic fluid.

The positive pole of the battery was now applied to the nerve (par vagum,) and the negative pole to the silver needle in the heart. There was no perceptible action of the heart, as it would in all probability have been evidenced by the quiescent motion of the needle if it had taken place: and in no way that we could discover, was its irritability evidenced, either by the simple introduction of the silver probe, or the action of the galvanic fluid. But the effect on the other parts was very evident. The muscles of the neck and chest were affected by strong convulsive twitchings, most strikingly displayed in those muscles called by anatomists platsmas, myoides, sterno-thyroides, and mastoides, pectoral and intercostal muscles. There was also a convulsive motion of the muscles in the region of the stomach, and a contraction of the muscles of the throat, as in the act of swallowing.

A needle was now inserted into the tendinous head of the diaphragm, the positive wire of the battery applied to the par vagum nerve, and the negative to the needle. The result was a slight convulsive motion extending over the chest and abdomen. The contraction and relaxation of the diaphragm was very evident from the protruding and relaxation of the abdominal muscles; the effect seemed to increase as the acid had time to act on the battery. The positive wire was now applied to a needle inserted into the seat of the phrenic nerve (a nerve distributed to the diaphragm, and has an important influence in the function of breathing.) An incision was made down to the tendinous head of the diaphragm, and the other wire (negative) applied to the incision. The result was very similar to the preceding experiment, with the addition of an agitation of the chest, compared by an intelligent gentleman present, and a close observer, to that of a person affected by hiccough.

I think it proper to notice, at this stage, a peculiar action of the galvanic fluid on the nerve and muscular fibre, observed by myself, and confirmed by one of the gentlemen assisting me. The positive pole, whenever it touched the nerve or muscle, produced an action or whitening very similar to that which is produced by lunar caustic when applied to an exposed muscle.

A nerve above the middle arch of the eye-brow (supraorbital) was now exposed and the positive pole applied to it, and the other below the lower lid. The re-
sult was a contraction of the muscle, causing a natural wink, and an opening and closing of the eye-lids, which was compared to that when the eye closes in a living person from fear of being injured by some offending object being thrust at the eye. There was also a contraction of the muscles of the cheek, similar to what is seen in some persons who suffer from neuralgia of the face—or aptly likened by a friend to that motion of the cheek when an effort is made by the motions of the face alone to drive off an annoying fly—which has settled upon it, without being at the pains to raise the hand for the purpose.

In the next experiment a silver needle was introduced into the facial nerve, one pole applied to it and the other to the cheek. The effect was slight motions of the face, and distention and contraction of the sides of the nostrils, resembling much the expression of disdain. The effect on this and the preceding nerve was very slight, compared with that produced by Dr. Ure, and so vividly painted by him. He says, "the expressions of rage, terror, anguish, and ghastly smiles, were produced, and united their hideous expression in the murderer's face, surpassing the wildest representations of a Fuseli or a Kean." In these experiments on the muscles of expression, with the exception of the expression of disdain, as before mentioned, none of those wonderful plays of the features were well marked which are so manifest when the countenance is animated by the mind, in its varying conditions of wild passion and pleasurable emotion.

The nerve going to the tongue (hypoglossal or 9th pair) was now touched by the positive pole. An interesting result ensued in the production of motion of the tongue alone. The positive wire applied to the silver needle inserted in the facial nerve, and the negative to the tip of the tongue, a very striking effect was produced, characterizing this as one of the most interesting experiments performed. The result was a rapid vibratory motion of the tongue, compared by several gentlemen to that of a serpent's tongue when alarmed or enraged. There was also a swelling or bulging out of the flesh or muscles under the lower jaw, which was agitated by a quick vibratory action, and one gentleman thought he heard the teeth striking together. The next experiment was the application of the wire to the muscles which assist in closing the lips and mouth. The result reminded me of the action of the lips when a person is muttering to himself, or about to utter words in a soft, low voice—or, in the words of a valued friend, extracted from the notes furnished me, the effect in his view in this experiment was as follows:—"The application of the galvanic influence in this experiment really did appear like animation; the lips acquired a motion precisely like those of a person reading to himself; and I do not know if this was not the most natural and pleasing experiment." The expression of countenance of the criminal in this stage of the experiment, caused a stare of amazement in many of the spectators.

A nerve (median) in the arm was now exposed, and an incision made into the middle of the little finger—positive pole applied to the nerve, and negative to the little finger. A most interesting and vivid display of the galvanic power was the consequence. The arm raised itself from a horizontal position with so much strength and violence, as to require the exertion of considerable power in the operator to restrain its freedom. It repeatedly made efforts resembling those of life to jerk its hand away from his grasp, and when permitted, struck against the chest with great violence, settling in the attitude of a pugilist when prepared to defend from the attack of an adversary. The motions of clenching and opening the hand, and the drawing up and extending the arm, during the progress of this experiment, was described by one gentleman something like the motion of one sowing grain in a field, if the body had been erect. The principal muscles of the arm were contracted so as to form a swelling, and their lines of demarkation were very conspicuous on the skin. During part of the time the forearm continued in its fixed position, and exhibited a tremulous motion, resembling that of the limbs of an animal immediately after receiving a blow on the head. The fingers were clenched on the hand in this experiment. These phenomena continued about half a minute, and then ceased. The poles of the battery were then removed, and soon
after re-applied. The same phenomena ensued with equal violence upon the
repetition of this experiment several times.

The ulnar nerve was then transfixed with an accupuncturing needle in the
elbow, and positive pole applied to it, and negative to the little finger. The
effect produced was a rapid motion of the fingers, but in a manner which was
particularly striking to all who witnessed their action. Instead of being flexed
at the same time, they moved sometimes rapidly, at others in a more gradual
motion, but alternately, being greatest in the little finger, which was the most
flexed, and diminishing towards the fore finger. The motion of the fingers in
this experiment was compared by one to that when playing on the flute, and
by others to the action of a violin performer when in playing he works upon
the strings of that instrument.

These two experiments were decidedly the most remarkable, and exhibited
the power of this most wonderful agent more completely than any other per-
formed, and excited great and renewed surprise and astonishment at the effect
of this magical influence, which could produce such wonderful phenomena,
and so closely resembling those of a living person in the limbs of a body whose
spirit had deserted it forever.

A needle was now introduced into the spinal marrow through the vacancy
cau sed by the separation of the vertebrae, and another inserted into the heart
and head of the diaphragm, but little effect was produced, other than the qui-
vering motion of the muscles of the neck and chest. The spinal marrow
being now completely exposed in the neck, positive wire applied to it and the
negative to the foot, the effect was not remarkable; there was a slight con-
vulsion of the muscles of the limb.

A needle being now inserted into the sciatic nerve, and another in the ham,
there resulted a spasmodic action of the large muscles of the thigh; when the
needle was changed to the inside of the foot, and the positive pole applied to
the one in the ham, and the negative to that in the ankle, a much more marked
and decided effect was perceived. The leg vibrated strongly (the subject
lying on the abdomen;) a swelling of the muscles of the calf of the leg; the
toes were flexed, and extended with considerable freedom, at an angle quite as
much as when extended in the act of stepping or walking.

With these the experiments ceased, the body having become externally
cold, and the irritability sensibly exhausted; the power of the battery appear-
ed also very much diminished, which will account for the weakened action
produced in the last experiments.

I have already occupied so much space, that I am admonished to draw these
remarks to a close, which I shall do in a few words. It may be proper to men-
tion the power of the battery employed in the above experiments, and that of
Dr. Ure, so that a comparison of results may be instituted, and it will then be
left to scientific persons to judge of the success which has attended these ex-
periments. The battery belonging to Mr. Edmondson, and used in this series
of experiments, consisted of two hundred pairs of Wollaston’s plates, each
two inches square, arranged in four troughs, connected by tinfoil communica-
tions, but which, from a more perfect mode of insulation, was estimated in
Dr. Cohen’s letter to me to equal one of three hundred or three hundred and
fifty plates, constructed in the usual manner. Dr. Ure’s battery consisted of
two hundred and seventy plates four inches square, with insulating handles.
There was therefore a great difference in the surface exposed to the acid. In
Ure’s plates a surface of sixteen inches was exposed to the combined action of
two powerful acids, nitric and sulphuric; whilst in ours a surface of four inches
only was exposed, acted upon principally by muriatic acid. During one stage
of the experiments, when the action of the battery appeared decreasing, a
small quantity of nitric acid was put in the troughs, which was just before
those beautiful experiments on the arm.

In the performance of these experiments, the gentlemen associated with me
were Doctors Conrad and Davidson, and my pupil Mr. Lee.

The medical gentlemen present at these experiments, were, of the town, Doc-
tors Holliday, Baldwin, McGuire and Pennington—of the country, Doctors
Lynn, Gray and Orrick—and several students of medicine and scientific gentle-
men.

Reports of cases, by Richard H. Thomas, M. D. of Baltimore.—Case of
Intussusception.—June 24, 1833. A child, five months old, was attacked with
pain in the bowels. Its mother gave it a purgative which did not operate.—
25th. I first saw the case; pulse somewhat tense, countenance lively, abdo-
men swollen, bowels constipated, straining with a slight discharge of blood—
vomiting. 26th. The child at times suffers much pain; stomach rejects
every thing; appetite good; abdomen more swollen; straining with bloody
mucous discharges from the rectum.

27th. Abdomen hard and much tympanized; dissolved blood and mucus the
only evacuation from the bowels; evident symptoms of collapse. 28th. Died
at 2, A. M.

Inspection by Dr. Fonerden.—The small intestines were greatly distended
with air; nothing abnormal in the condition of the stomach, duodenum or
jejenum. The ileum was inflamed, and of a livid hue. In tracing the ileum
from the caput coli, an intus-susception was found in the left iliatic region, with
its superior extremity inclining a little towards the spine.

The inversion began near the termination of the arch of the colon; it inclu-
ded the arch, the ascending colon, and part of the ileum, which were firmly
impacted in the sigmoid flexure. It extended as low as the rectum. The
inverted portion was turgid, and of a dark red color.

In this case, various purgatives were administered, and the warm bath and
fomentations used. The nature of the obstruction was early suspected, from
the great irritability of the stomach, the swelling of the abdomen, and more
especially from the impossibility of administering enemata; (they were return-
red immediately.) The introversion of the bowel must have occurred on the
24th; the day on which the first purgative was given, as the child's bowels
were moved naturally in the morning—could it be attributed to the purgative?
It is remarkable for the great extent of intestine which was involved in the in-
tus-susception, viz. a part of the small, and all of the larger bowels, except
the rectum. The child had enjoyed good health previously to this attack.

A case of Cyanosis with Dissection.—Mrs. ———, was delivered, 12th July
1833, of a male infant. Respiration was immediately established, but the
child did not cry—making only a low plaintive moan. It was plump, weigh-
ted six pounds, its color, however, was peculiar; the surface of the body
presented a deep red tint. The soles of the feet and palms of the hands a
much deeper hue. This hue, with the moaning, disappeared upon the child's
vomiting phlegm several hours after birth. Nothing unusual occurred on the
second day, except, that the infant shewed no disposition to take the breast.
On the 14th, a gentle purgative was prescribed, as the bowels had not been
freely evacuated; the child sucked heartily. At 2, P. M. the nurse observed
that the child turned very black in the face, and had some convulsive movements.
I saw the little sufferer soon afterwards; it laid in a very languid state, with an
intermitting feeble pulse, extremities cold, face and extremities dark and livid;
at intervals the whole surface would become almost blue. Several deep sigh-
ing inspirations being made, the blueness would nearly vanish every where,
except in the left arm, from which it did not disappear, and in which the deep-
est tint was always present. These paroxysms (if they may be so called)
ocurred every five minutes or more frequently. I had no difficulty in pro-
nouncing the case to be cyanosis or morbus ceruleus—a communication
between the right and left sides of the heart was clearly indicated. The
symptoms mentioned, continued for 11 hours, when the child died.

My friend, Dr. Aug. L. Warner, who examined the body, in presence of
several medical friends and myself, has kindly furnished me with the following
account:

General aspect.—Integument of the face lemon color, with purpurous
patches, under the eyes and around the lips; extremities of a dark blue hue,
particularly the left arm. As the phenomena of the case warranted the presumption that a communication existed between the right and left cavities of the heart, the examination was confined to the thorax. The heart was removed with its vessels and their ramifications. Heart of healthy complexion and usual size; foramen ovale closed by a delicate valve formed by the lining membrane of the auricles; nothing abnormal in the valvular apparatus of the foramen or any other part of the heart. Attention being directed to the ductus arteriosus, it was found to be of equal size with the right pulmonary artery, passing from the pulmonary artery, and entering the aorta directly opposite to left subclavian artery. A blow pipe passed into the ductus arteriosus, clearly demonstrated that from its great calibre, an amount of venous blood equivalent to that which passed in to the pulmonary artery, would be thrown into the aortic circulation and principally upon the left subclavian artery.

Remarks—The ductus arteriosus was here the medium through which the venous blood was poured into the arterial circulation. It was not only four times its proper size, but it also entered the aorta at an unusual point, viz: directly opposite to the origin of the left subclavian, which fact contributed to keep the duct pervious. It also explains the very dark tint of the left arm. To what extent the communication between the right and left sides of the heart may exist, without the speedy extinction of life can scarcely be demonstrated. Instances are on record, in which individuals have dragged out a miserable being for ten, and even sixteen and twenty years, in whom this malformation existed to a very great degree. It however, may be fairly deduced, that where such an amount of venous blood is thrown into the aortic current as very seriously to embarrass the function of the brain and spinal cord, death must very soon result. Such was the fact in the present instance.

Reports of Cases, by M. S. Baer, M.D. of Baltimore.—Case 1—Secondary Syphilis, treated with Fowler's Solution of Arsenic.—1824. H. Thompson, aged 34 years. (Patient in the Baltimore General Dispensary.) He stated, that, some time before his application, he had had the venereal disease, but thought himself entirely cured. At this time, he had two large nodes on the frontal bone; they were so exquisitely painful, that before the hand come in contact with them, he shrunk back with fear of their being touched. Both of his legs were covered, from the head of the tibia to the ankle, with most offensive and painful ulcers. He complained of pains in the thighs and arms: there was also a complete fistula in ano. He was put on thirty drops of Fowler's Solution of Arsenic, three times a day. In the course of ten days, there was an evident improvement in the ulcers, and the nodes less sensible. The medicine was continued about three weeks—at the expiration of which time, the ulcers were entirely healed, and the nodes disappeared. I now determined to operate on the fistula. (I did not feel myself at liberty to operate in the commencement of the treatment, from the great depreciation of the patient's health.) On examination, however, I found it entirely healed. This was accomplished through the general treatment, as no local application had been made to it during the treatment of the case.

Case 2.—J. H., aged fifty-five years, had an offensive and painful ulcer, extending from the eyebrows to the middle of the hairy scalp. From the character of the ulcer, I was led to suspect that it was syphilitic—his own confession confirmed me in the opinion. The ulcer was rapidly extending over the scalp; he said 'that there had been a thousand medicines put on it to cure it, but they all made it worse.'

He was put on twenty drops of Fowler's solution of arsenic, three times a day. From the sixth, there was an evident improvement in the ulcer. The medicine was continued for four weeks, when there was an entire cure. There was no local application made to the ulcers in either case.

There was a slight paralysis in the extremities in both cases, which promptly retired on discontinuing the solution and making use of the unguent. Jenerii.

Sub Cutaneous Tumor.—1829. Aan Evan, colored woman, aged forty years—complained of severe pain in a small moveable tumor, situated on the upper edge
of the external ankle of the right leg. She had suffered pain in the part for the last four years, which was daily becoming worse, especially whenever she was suddenly excited; and then, in her own words, "it would fly from the tumor, seize on the back bone, all the way up to the head, and then all over the breast, and make her feel as if she should choke." There was a constant burning heat in the tumor, yet the pain was not increased on handling it.

Her health was much impaired—general emaciation, loss of appetite, bowels constive, irregularity in the menstrual discharge, with an exalted irritability of the whole nervous system.

The tumor was removed, with a portion of the integuments. The wound healed on the application of light dressings. Some gentle aperient medicines were given when the patient was discharged. The tumor was about the size of a common pea, flattened on the inner surface, firm in its texture, and of a pearly whiteness. On making a section of it, the same consistence was observed throughout. The patient's recovery was speedy, and up to this date, (1833) she has enjoyed excellent health.

Case in which a button was lodged in the Esophagus eighty-two days.—1829. Joseph Hess, aged five years, swallowed a button, about the size of a cent. I saw him a few moments after, but as he was eating bread and molasses, I took it for granted that the button had passed into the stomach. Ordered castor oil. On the eighty-second day after the accident, the mother expressed her fears that the button was still in the throat; and, on examination, it could be distinctly felt, on a line with the top of the sternum. It was easily passed into the stomach, and was thrown off from the bowels in twelve hours after. It was very slightly acted on during its stay in the passages. The boy enjoyed tolerable good health; lived on soups, milk, &c. always washing them down with water. There was a peculiar metallic sound in the voice, until the button was removed.

A case of Congenital Atresia of the Ileum.—In 1827, we were requested to meet a professional gentleman in consultation, in the case of an infant child of Mr. W., aged three days. No evacuation had been obtained from the bowels from the period of birth, notwithstanding various means had been employed to produce that effect. Amongst other remedies resorted to by the attending physician, we should state that, on the day previous to our visit, he had administered an ounce of crude quicksilver at a single dose, which however did not pass through the bowels. The child was robust for its age, and well formed. We found it laboring under considerable febrile excitement, tension and great tenderness of the abdomen, and occasional vomiting of whatever was taken into the stomach, especially after taking the breast. Various remedies, mostly of the soothing and emollient kind were employed for the purpose of overcoming the obstruction of the bowels, but the child grew worse, and died the next day.

On examination some hours after death, the stomach and the whole of the upper part of the small intestines were found violently inflamed, and of a deep red or violet color. Towards the lower part of the ileum a portion of the tube was found perfectly impervious to the extent of about eight inches. The whole extent of this part of the gut resembled a small solid chord about the size of a snare's quill, which, when cut into presented the appearance of crude tuberculous matter. The intestine above the atresia was somewhat dilated, and contained much dark mucous; but not a particle of the quicksilver could be discovered.

Electricity for the cure of Warts. By Albert G. Welch, of Annapolis.—Having had during the past winter, when I attended lectures on chemistry, frequent opportunities of trying experiments with electricity, and having several warts on my hands, to get rid of which I was exceedingly anxious, and having tried repeatedly the efficacy of nitrate of silver, and other caustics without any advantage, I determined to try the efficacy of electricity. I therefore commenced by sending sparks through them, which was repeated for five minutes daily, for five days, when to my great satisfaction, I found that they had entirely disap-
peared, since which time they have not re-appeared, which they did when re-
moved by the knife, or by caustic.

As there may be others who would like to be clear of such disfiguring excre-
scences, and as the mode of removing them may not be generally known, if you
think it worth publishing, I would be glad if you would insert the same in your
journal.

The Cyclopedia of Practical Medicine and Surgery; a digest of Medical
Literature. Edited by ISAAC HAYS, M. D. Part 1, pp. 106, July 1833, Carey,
Lea & Blanchard, Philadelphia.

The first number of this valuable work was published in July, and the se-
cond we are informed will issue from the press in a few days. The part which
is before us commences with the first letter of the alphabet, and terminates
with the word abscess. The principal articles are abdomen, anatomy, general,
surgical and abnormal, by Dr. Geddings: physiology, pathology, fetus, of, &c.
by Dr. Hays: wounds of abdomen, by Dr. R. Coates: obies, by Dr. Wood: abor-
tion obstet, by Dr. Dewees: abortion med. leg. by Dr. Griffith, and abscess, by
Dr. Harris.

Of the first of these articles we shall say nothing; but of the others we are
at liberty to speak, and we are gratified to be able to do so in terms of high
commendation. The specimen of the work which is before us, induces us to
form a favorable opinion of the manner in which the subsequent parts will be
executed.

The Cyclopedia is to be published in parts, averaging 112 pages, each,
printed in small type and double columns. It is expected that it will be com-
pleted in forty parts, making eight large octavo volumes. One part will be
published every month if practicable, and at the price of fifty cents each.

We will merely observe in conclusion, that we regard the publication of the
Cyclopedia of practical medicine and surgery as one of the most useful under-
takings for the advancement of professional knowledge, that has ever engag-
ed attention in this country, and we doubt not the enterprising publishers will
receive ample encouragement.

A memoir on Staphylography; with cases, and a description of the instruments
requisite for the operation. By ALEXANDER HOSACK, M. D., one of the Sur-
geons to the Marine Hospital, N.Y. New York, 1833.

Much embarrassment has been experienced in the performance of this im-
portant operation in paring off the edges of the palate, and passing the sut-
tures. To surmount these difficulties, Dr. Hosack has devised instruments by
which both these steps of the operation can be easily accomplished. They
appear to us, from an inspection of the plate which accompanies the memoir,
to be well adapted to the exigencies of the case.

Samuel Baker, M. D. Professor of Materia Medica, and Maxwell McDowell,
M. D. Professor of the Institutes of Medicine, in the University of Maryland,
have resigned their respective chairs in that Institution. Both these gentle-
men have been connected with the University from an early period of its ex-
istence, and have, by their able and diligent exertions, contributed largely to
elevate it to its present high reputation. In their retirement, they carry with
them the esteem and heartfelt attachment of their colleagues, and the grate-
ful remembrance of a large number of Alumni and students who have profit-
ed by their valuable instruction.

At a meeting of the Trustees of the University of Maryland, held in May
last, the chair of the Institutes of Medicine, vacated by the resignation of
Professor McDowell, was abolished, and the subjects appertaining to it assign-
ed to the chairs of anatomy and the practice of medicine. Professor Robley
Dunglison, of the University of Virginia, was at the same time unanimously
elected to the chair of materia medica, therapeutics, hygiene and medical juris-
prudence, vacated by the resignation of Professor Baker. The high and well
merited reputation of Professor Dunglison, as a teacher of medical science, is
too extensively known to make it necessary for us to say any thing of the impor-
tance of his appointment: we are happy to say, that the University will, during the approaching session, enjoy the benefit of his talented exertions, which, we feel assured, cannot fail to exalt its reputation, and augment its use-
fulness.

Our esteemed friend, Dr. Isaac Hays, of Philadelphia, has just published, in the Transactions of the American Philosophical Society, an elaborate memoir on the fossil bones of the mastodon and tetracaulodon. It is known to most of our readers, that the late Professor Godman, a short time before his death, furnished a description of some fossil bones, which, from the presence of tusks in the lower jaw, he proposed to make the type of a new genus, under the title of tetracau-
locon. Some naturalists, however, suggested that these lower tusks were merely the milk-teeth of the young mastodon, which fall out as the animal grows older. Dr. Hays has made a careful examination and comparison of all the specimens which have been as yet collected, and has, we think, completely refuted this opinion. We have ourselves had an opportunity of examining the fine collection of casts belonging to the American Philosophical Society, and feel fully convinced of the correctness of the opinion advanced by Dr. Godman, and confirmed by the researches of Dr. Hays. At any rate, the only question that now remains to be solved, before the genus tetracaulodon is admitted, is that originally suggested by Mr. Titian Peale, that the lower tusks may be a mere sexual difference. Unfortunately, no means exist of deciding this point.

Dr. Hays has executed his task in a very able manner, and we recommend his memoir to all votaries of natural science.

The following are the Prize Questions of the Medical Society of the State of New York, for the current year:

1. The Medical History of Cholera Morbus, previous to the appearance of the Asiatic Cholera—to be drawn from authentic writers and individual observation.
2. The influence of malaria, or marsh effluvia, in the production of disease, and the peculiar circumstances under which it acts most violently.

For the best dissertation on either of these subjects, a premium of fifty dollars is offered. Essays may be sent on or before the first of January, 1864, directed to Joel A. Wing, M.D. Secretary, Albany.

Means. Carey, Hart & Co. have in press, and will shortly publish, an Essay to prove the contagious character of Malignant Cholera, with brief instructions for its prevention and cure—by Bernard M. Byrne, M.D. of Baltimore.

N. R. Smith, M.D. Professor of Surgery in the University of Maryland, is preparing for publication, a Treatise on the Principles and Practice of Surgery. The work will be illustrated by numerous wood cuts.
Baltimore

Medical and Surgical

Journal and Review.
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EDITORIAL NOTICES,

And acknowledgments to Correspondents.

In entering upon our Editorial duties, we felt, as was natural, some misgivings of the success of our enterprise. The reception of our first number, however, and the flattering assurances we have received from our professional brethren, from various and distant parts of the union, have tended measurably to dispel these doubts, and to encourage us to redoubled efforts. No exertions shall be spared on our part to merit the confidence already reposed in us; and aided by the zealous co-operation of the members of the profession who feel an interest in the advancement of the science, we trust we shall be able to redeem the pledge originally set forth in our prospectus. To enable us to do this, we respectfully invite our professional brethren generally, to furnish us with the results of their experience, and to make our pages the vehicle for their communications. They may differ from us in opinion, but as a free interchange of thought constitutes one of the most fruitful means of arriving at truth, they will not find us less disposed to give publicity to their contributions, because they embrace principles at variance with our own.

Communications have been received from Drs. Meigs, Tolifree and Logan. They came to hand too late for our present number.

The following works, in addition to those announced in our last quarterly report, have been received for notice and review:

Illustrations of Pulmonary Consumption, its Anatomical characters, causes, symptoms and treatment, with twelve plates, drawn and colored from nature. By Samuel George Morton, M.D. Physician to the Philadelphia Alms-house. Hospital &c. Philad. Key & Biddle, 1839 (from the Author.)

The Dispensatory of the United States of America.—By George B. Wood, M.D. Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy &c. and Franklin Bache, M.D. Professor of Chemistry in the Philadelphia College of Pharmacy, &c. Second Edition carefully revised and enlarged. Philad. Grigg & Elliott, 1835 (from the Authors.)

As we hope to be able to furnish a review of this valuable work in our next number, it will be sufficient at present to observe, that we consider it by far the best treatise on the subject which has fallen under our observation. In this sentiment we are borne out by the fact, that a second Edition has been called for within a few months of its first publication.


The opinions of M. Brousais are every day becoming more extensively known to the medical profession, and in a proportionate ratio, those who are open to conviction, are disposed to award him the meed of praise, for the important services which he has rendered to medical science. We are not among the number, small as we hope, who are disposed to adopt unconditionally all the items of his creed, but we have no hesitation in asserting from the result of much observation and reflection, that we think he has done more for the science of medicine than any single individual of modern times. These Lectures, containing as they do an application of his principles to the whole range of diseases, cannot fail to attract the attention of all who feel interested in the advancement of professional knowledge.

Clinical Lectures on Surgery, delivered at Hotel Dieu, in 1832. By Baron Dupuytren. Published by an Association of Physicians. Translated from

An Essay to prove the contagious character of Malignant Cholera, with brief instructions for its prevention and cure. By Bernard M. Byrne M.D. (From the author.)


Catalogue of the Trustees, Faculty and Students of the Medical College of the state of South Carolina, to which are added the charter and by-laws of the College. (From Professor Wagner.)


The Edinburgh Medical and Surgical Journal, for Jan., April, July and October, 1833.

The American Journal of the Medical Sciences, for Nov. (In exchange.)


An account of some Galvanic experiments performed on the body of a criminal. By Professors Emmet, Patterson and Johnson, of the University of Virginia.

The Medico-chirurgical Review, for April 1833.

An Introductory Lecture delivered to the Medical Class of the University of Maryland. By Robley Dunglison, M.D. Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence in the University of Maryland. Published by the Medical Class. (From the Committee.)

An Introductory Lecture delivered at the opening of the Medical College of the State of South Carolina. By Samuel Henry Dickson, M.D. Professor of the Institutes and Practice of Medicine. Published by the Class. (From the author.)

A Lecture on Medical Education, Introductory to the course of the Institutes of Medicine in the University of Pennsylvania, for the session 1832—3. By Samuel Jackson M.D. Assistant Lecturer to the Theory and Practice of Medicine and Clinical Medicine in the University of Pennsylvania. Published by the request of the Class. (From the author.)

Authors and publishers who may be desirous of having their works noticed, are requested to transmit us a copy as soon after publication as possible, when they will receive the earliest attention. Editors of American or Foreign Medical Journals, who may wish to exchange with us, will please forward their numbers, and ours shall be promptly sent to their direction. They may be either transmitted direct, or through any of our agents.

All communications for the Journal should be sent as early as possible after the publication of the preceding number. As the Editor has no participation in the business of publication, he requests that all communications and letters may be addressed exclusively to the publisher, Wm. R. Lucas, Market-street, Baltimore, for the Baltimore Medical and Surgical Journal. Letters must, in all instances, be post paid.
CONTENTS.

ORIGINAL COMMUNICATIONS.

I. Observations on Pneumonia Biliosa. By Nathaniel Potter, M. D. Professor of Pathology and the Practice of Medicine in the University of Maryland

II. Observations on the Pathology of Fever. By John P. Harrison, M.D.

III. Observations on Death from Drinking Cold Water when the body is heated. By R. Tolifree, Jr. M.D.

IV. Observations on the Pathology and Treatment of Asthma. By E. Geddings, M. D. Professor of Anatomy and Physiology in the University of Maryland

V. Case of an extraordinary Tumor attached to the Occipital region of the head, with a cut. By E. S. Bennett, M. D.

VI. Observations on some of the Causes of Secondary Hemorrhage. By N. R. Smith, M. D. Professor of Surgery in the University of Maryland

VII. An Instrument for the Removal of Foreign Bodies from the Throat, with a cut. By R. Tolifree, Jr. M. D.

VIII. Pathological Contributions. By Richard H. Thomas, M. D. Lecturer on Obstetrics and the Diseases of Women and Children

IX. Case in which shot were discharged from the Urinary Bladder. By William Watson, M. D.

REVIEWS.


The Morbid Anatomy of the Uterus and its appendages, with Illustrations of the most frequent and important diseases to which those viscera are subject. By Robert Hooper, M. D. &c.

XII. A Memoir on the practicability of dividing the stricture in Strangulated Hernia, on the outside of the Sac, with cases and drawings. By C. Aston Key, Esq. Sea. Surgeon to Guy's Hospital, &c.

BIBLIOGRAPHICAL NOTICES.

XIII. An Essay to prove the Contagious character of Malignant Cholera, with brief instructions for its prevention and cure. By Bernard M. Byrne, M. D.
**CONTENTS.**

XIV. Illustrations of the Elementary forms of Disease. By Robert Carswell, M. D. Professor of Pathological Anatomy in the University of London, &c. Fasc. 3.

Principles and Illustrations of Morbid Anatomy, adapted to the Elements of M. Andral, and to the Cyclopaedia of Practical Medicine, being a complete series of colored lithographic drawings from originals by the author. By J. Hope, M. D. parts 1 to 6. 434

XV. Phrenology in connexion with the study of Physiogonomy. By J. G. Spurzheim, M. D. with 36 plates. To which is prefixed, a Biography of the author. By Nahum Capen 435

**QUARTERLY SUMMARY OF INTELLIGENCE.**

**FOREIGN INTELLIGENCE.**

**ANATOMY.**

1. Anatomical and Physiological remarks on the connexion between the Placenta and Uterus. By M. E. A. Lauth, M. D.  437

2. Anatomical observations on the alleged existence of the Ganglion Oticum in man and quadrupeds. By Frederic Schlemm, Professor of Anatomy in the University of Berlin  439

**PHYSIOLOGY.**

3. On the Umbilical Vesicle. By Professor Mayer  441

4. On the Human Voice. By Sir C. Bell  441

**PATHOLOGY.**

5. Cancer of the Heart and Kidneys. By Professor Renaudien  449

6. Communication between the right and left Auricles and the right and left Ventricles of the Heart, in an adult who had been affected with Cyanosis from the period of birth. By M. Renaudien  449


8. Injury of the first pair of Nerves, attended with loss of smell. By M. Voisin  451

9. Pericarditis occasioned by the introduction of a long needle into the substance of the right Ventricle of the Heart. By M. Renaudien  451

10. Singular cases of hereditary deformity. By M. Voisin  452

11. Thirty-one Fractures in one Individual  452


13. Apoplectic death from effusion of blood from Aneurism of the Basilar artery. By Egerton A. Jennings  455


15. Congenital vice of conformation of the Brain. By M. Deschamps  456

16. Death by the Guillotine. By M. Julia Fontanelle  457

17. Contributions to Pathological Phrenology. By H. H. Holm  457

18. Case of Alvine Concretions discharged through the pareticides of the abdomen. By Frederick Granger  458

19. Foreign substance in the Trachea. By Charles Hooker  459
CONTENTS.

THERAPEUTICS.

20. On the employment of Saline in Intermittent Fevers. By Maurice Reuf - 460
23. Cross on the Treatment of Ptyalism - 461
24. The duration of Fevers. By Dr. Latham - ib.
26. Gangrene of the Lungs, case of recovery. By J. Wyatt Crane - 465

27. Rheumatic Gout cured by the mineral Magnet. By E. S. Blundell - 467
28. Case of Hydrocephalus. By Thomas S. Traille, M. D. - 468
29. Andral's Lecture on Migraine 469
30. Muriate of gold in Dropsy. By Dr. Wendt - 473
32. Cases of Poisoning with Da- tura Stramonium - 474

OPHTHALMOLOGY.

33. Arsenic in Choroiditis. By Wm. McKenzie - 477
35. On the use of the Essential Oil of Lemons in various Inflammations of the Eye. By John Foote - 478

SURGERY.

36. Case of Carotid Aneurism successfully treated by placing a ligature on the distal side of the tumor. By Mr. Montgomery - 484
37. Clinical Lectures on Surgery. By Baron Dupuytren - 485
38. Crampton on the Pathology of Dislocations of the Shoulder-joint - 492
39. Treatment of Ganglia with Iodine. By M. Ricord - 497

40. New and easy method of reducing Dislocations of the Shoulder-joint. By M. Malgaigne - 498
42. M. Maingault's Remarks on Tracheotomy - ib.
43. On the advantages of Caustic in the treatment of incarnated nail - 499

PHARMACY.

44. M. Blanche on the formation of pilliar masses - 499
45. Purification of gum resins. By M. Monchon - ib.
46. The introduction of medicines by a Galvanic Current. By M. Fabre Palapart - 500

47. Chloride of Lime, a remedy for Itch. By M. Fantonetti - ib.

MEDICAL JURISPRUDENCE.

48. Experiments to determine at what period a piece of fire-arms has been discharged. By M. P. H. Boutigny - 501
49. The Presence of Arsenic in Glass - 505

STATISTICS.

| Case in which a large Tumor and Abscess of the Mamma attended with Hemorrhage, was successfully extirpated. By Washington W. Hitt, M. D. | 505 |
| An Introductory Lecture delivered to the Medical Class of the University of Maryland. By Robley Dunglison, M. D. Professor of Materia Medica, &c. | 507 |
| Prizes offered by the Medical Reform Association of England | 53 |
| A Lecture on Medical Education, introductory to the course | |
| of the Institutes of Medicine, &c. By Samuel Jackson, M.D. Assistant Lecturer on the Theory and Practice of Physic in the University of Pennsylvania | 508 |
| An Introductory Lecture delivered at the opening of the Medical College of the state of South Carolina. By Samuel Henry Dickson, M. D. Professor of the Institutes and Practice of Medicine | 510 |
| Organization of the School of Medicine of Paris | 56 |
ART. I. Observations on Pneumonia Biliosa. By Nathaniel Potter, M.D. Professor of Pathology and the Practice of Medicine, in the University of Maryland.

The disease which has received the nosological appellation, Pneumonia or Pleuritis Biliosa, does not seem to have been the subject of any formal consideration, at least no such work has fallen into our hands, although we have diligently searched the annals of medicine of ancient and modern times. The treatise of Triller, known to us only by report, may be an exception to this remark. All other writers who have noticed it have treated it so superficially, that they have imparted little information on its pathology or treatment. This deficiency is the more extraordinary, as it must have been observed occasionally in all countries liable to the evolution of malaria preceding a cold winter. It has been mentioned cursorily, by Bianchi, Lancisi, Morgagni, Baillie, Sydenham, Tissot, Sauvages, Cullen, and several others. Doctor Cullen noticed it in his lectures in 1776, and like most of his predecessors, viewed it as a typhus, with pulmonary and hepatic symptoms. In the zenith of his fame he gave the tone of public opinion to his contemporaries, and for a series of years to his successors. It was left for the physicians of our country to shew that the type of the disease, could not be restricted to that abject state of debility, which so often characterizes typhus. This opinion notwithstanding, was entertained till very recently, and even at this time, the prejudices of early education, control the practice of many American practitioners.
Doctor Mitchell, of Virginia, published a small tract, entitled "Remarks on Bilious Pleurisy," in 1775, in which he presented a faithful picture of the symptoms of the disease, but does not appear to have been sufficiently aware of its insidious inflammatory character. The late Doctor Hugh Williamson, of North Carolina, published an essay on the same subject, and insists on its asthenic and prostrate state, and treated it by durable and diffusible stimuli. He seems to have been deterred from the employment of evacuating means by the phantom putrefaction, very common among the writers who alluded to it, as may be perceived by the name, *putrid pleurisy*, so often bestowed upon it in their time.

In July 1821, we addressed some remarks on this subject to the editor of the Medical Recorder, in which we proposed to demonstrate that the Pneumonia Biliosa of the United States, assumed a more decided inflammatory character, and that consequently, it could only be successfully treated, in some seasons, and in certain subjects at all times, by copious depletion, and such energetic remedies as are competent to cure other congestive or inflammatory diseases.

Perhaps the names imposed upon the disease, many of which are not warranted by its pathology, have governed many practitioners who are fastidiously attached to nosological definitions to the great detriment of science. While very few of them appealed to dissections, they were deceived by the insidious appearance of the case, at a time when the congestion of the visera was not understood. The names pneumonia typhoides, typhus pneumonia, and putrid pleurisy, could reflect little light upon a disease so occult and dangerous. A man who had never seen a case of the disease in its most violent form, would be as much at a loss in drawing a correct indication from the obscurity of the symptoms, as he would be in a case of yellow fever, which he had never seen.

Such is the complicated condition of several organs implicated in the disease, and such the variety of the symptoms they present, that they would require a volume to do justice to the subject. A long series of clinical observations, and a strict attention to the minutiae of practice, furnish the only means of discovering the true characters of the disease.

Pneumonia Biliosa is a compound affection, originating in a double remote cause, and hence the appellation it has received is more or less expressive of its character, although it does not embrace it entirely, inasmuch as we find other organs involved
which usually modify the disease. The brain and its investing membranes are often deeply implicated, and these affections contribute to foment the disease and increase the danger. It is from this fact, that the popular name of head pleurisy, has become so general, and the danger is often calculated from the intensity of the cerebral symptoms, although no general rule can be predicated upon the fact.

Although the disease is to be found in so many localities, and in latitudes so different, under so many degrees and varieties, from the pleuritic intermittent, to the most malignant degree of combined pulmonic and hepatic affection; it is only in such places as are liable to the generation of an abundance of malaria, followed by a low temperature, with great extremes, that we experience the disease in its worst form. It is for this reason, that the middle states of North America, exhibit all its phenomena on a magnified scale, and more completely developed, because they mark a higher degree of inflammation, than has been observed in any other country. In the eastern section of our country, the disease is seldom distinctly formed, presenting rather a faint noxious or catarrhal complication, and occasionally modified by some of the varieties of angina. Nevertheless, of late it is more prevalent, and the hepatic affection is clearer, in the ratio of the increment of the diseases of malaria. We are informed by good authority, that it is more rife now, in Jersey and on the banks of the Delaware, than it was twenty or thirty years since. South of the Potomac, and throughout the old settlements of the whole southern country, it frequently occurs, and although it is occasionally highly inflammatory, it is more disposed to assume a typhoid type. This relict of marsh effluvia, aided by the more enervating influence of a low temperature, is beginning to unfold itself on our south-western waters, and that portion of our country, is likely to verify the prophetic remark of the sagacious Franklin: "that newly settled countries are healthful for a certain period after their first settlement, that they become inhospitable to man in a partial state of cultivation, and again salubrious when it shall become necessary to cultivate the whole soil to supply the wants of a more crowded population."

Like the causes of some other diseases, those of pneumonia biliosa, seem to have an elective attraction for a certain description of subjects in preference to others. Children, though equally exposed to the remote causes, are less liable to this form of disease. The solution of this fact, seems to be deducible from
the functions of the organs concerned. The stomach and liver are less liable to congestions in children, than in adults, and when they are under the action of the causes, they are more elastic, and sooner repel them. The stomach, which forms the medium of communication in a double sense, between so many other parts, preserves its powers in their integrity in children, and does not so often, from intemperance and over distension, convey its morbid sympathies to its distant dependencies. Although subjects under the age of puberty are sometimes liable to this disease, it has been frequently observed that children are afflicted with pneumonia vera or catarrhal fever, while their seniors, under the operation of the same causes, labor under the complicated affection. Very old persons seem scarcely susceptible of the disease, although they are subject to all those which depend upon a low temperature. They seem to be insensible to the influence of malaria from a long habitual exposure to its action. Women, although more easily affected by cold than children, are less obnoxious to the causes than men. Most of the causes that tend to the preservation of children, apply in a certain degree to them; their ordinary regimen is more temperate, and their domestic occupations at all seasons, are calculated to evade both the remote and exciting causes, especially the remote cause, cold. Negroes, although more sensitive to a low temperature, which seems to be one of their greatest enemies, are rarely affected by this variety of pneumonia, and in the few examples we have seen, the disease has never been displayed in its full force. The hepatic affection is more indistinct, and a deviation from pneumonia vera is only to be perceived by nausea, slight headach, and an obscure remittent type, under a feeble action of the heart.

Those who dwell within the sphere of the operation of marsh effluvia, during the summer and autumn of every year, are never entirely divested of its influence. Although the cold of winter suspends the evolution of malaria, it does not continue long enough to destroy the predisposition previously occasioned. Hence we see the existence of the cause is evinced, by the appearance of the blood drawn from a vein in such persons, by the disposition of the liver to suffer from inflammation, acute and chronic, and by the irritability of the stomach in many of the diseases of winter. In winters succeeding to an annual epidemic, pneumonia biliosa is more prevalent, and any extraordinary variation of temperature, especially sudden heat, will excite the disease in so great a number, that it may be properly viewed as an epidemic. Warm springs
after cold winters, frequently furnish a melancholy commentary on this occurrence. Those who have escaped the autumnal, are more susceptible of the disease in winter and spring, and the vernal disease is usually more inflammatory. Such as have been cured by free evacuations of autumnal fevers, are scarcely subject to the invasion of pneumonia biliosa. If they are attacked, the hepatic affection is not clearly marked. Such as suffer intermittents to run into winter, are not only more liable to a compound fever, but suffer more on account of a feeble action of the heart, and a greater facility to disorganization, more especially of the lungs. In such subjects it frequently terminates in effusions, on the 3d, 5th or 7th day. If the patient should be so fortunate as to escape such a catastrophe, the remaining hepatic affection is often the subject of medicinal treatment, and he is destined to experience some of the forms of dropsy, or repose the chances of life on a course of mercury. Persons in whom intermittents or remittents have been suspended by the premature use of the cinchona or other remedies, except evacuations, and others who have not been subjected to thorough purgation in autumn, are more liable to pneumonia biliosa. In an atmosphere inquinated by malaria, there are but few, who do not (though often unconsciously,) labor under some hepatic disarrangement, either functional or organic, and such persons hold their lives by a precarious tenure in winter, when they are so often exposed to the depressing influence of a low temperature. They are doubly predisposed, and constantly carry about them a morbid facility to the exciting causes, by which they are surrounded.

Preceding the attack, there are many premonitory signs, various in number and degree; though it sometimes seizes the patient suddenly and violently, without the least previous indication. In its nascent state, the patient usually complains of a general lassitude, impaired or lost appetite, nausea, bitter taste in the morning, constipation for a day or two, and exquisite sensibility over the abdominal or thoracic region, and obtuse pain or soreness, extending upwards from the liver to the lungs, sometimes in the shoulder joint, and in other cases under the scapula. A continuity of inflammation has been discerned after death, extending from the peritoneal covering of the liver to the pleura covering the lungs. The liver sometimes suppurates and pus is coughed up from the lungs, and the patient occasionally recovers. A tension and fullness is sometimes felt in the liver several days before the more formal aggression of fever.
and the vitiated bilious alvine excretions frequently excite pain in the intestinal canal, and sometimes tenesmus. Mucus with small portions of blood impart a dysenteric character. A sensation of pain in the extremities, particularly in the legs, precede and accompany the attack, almost as frequently as they do intermittent or remitting fever. A pain in the back is occasionally one of the harbingers of an attack. The aspect of the skin frequently presents indications of approaching disease. It is sometimes tinged with bile several days before any other sign can be perceived. The countenance is highly expressive of the character of the disease. The face is flushed, and a sickly mixture of yellow and red, upon a minute inspection betray the diseased condition of the liver. The more formal symptoms, though not very various at the commencement, become more complex and difficulty defined, in most cases that are permitted to run an uninterrupted course. The mucous membranes of the stomach and intestines, as well as of the bronchia and air vessels become involved in inflammation, and modify the symptoms. In certain cases, so little is the parenchyma of the lungs concerned, that the disease might with more propriety be denominated catarrhus biliosus. This catarrhal form of disease appears to a greater or less extent, after miasmatic seasons in November or December every year, especially when these months are unusually cold. The hepatic affection in such cases is obvious, and in the treatment, a strict attention to the liver is indispensable. It is usually highly inflammatory, and seldom runs down into the typhoid state so rapidly as the pneumonia biliosa perfectly formed. In the incipient state of pneumonia biliosa, the symptoms are more clearly hepatic, and previous to the appearance of the pulmonic affection, the disease could only be viewed as a remittent fever. In many the pulmonary symptoms are silent for two, three, or four days; and among a variety of cases, we occasionally observe one or two in which the lungs seem to be exempted from disease. An acute headach is the most constant, as well as the most prominent symptom. It sometimes precedes the accession of fever, but is always coeval with the reactive state. The diseased condition of the liver, may be accurately ascertained, by the intensity of cerebral pain, or the lethargic state of the organ, which is sometimes among the first symptoms. The more severe the headach, the more indistinct we find the pulmonic affection, though there are some exceptions; but the rule is sometimes reversed, for in very violent inflammations of the lungs, the headach is inconsiderable. Either of those af-
fections have terminated in death, without the co-operation of the other. Effusion in the lungs is more frequently the cause of death. In the most formidable cases, a chill precedes the reactive stage, but in others it is scarcely perceptible. Under deep congestion, the circulation struggles under alternate successions of chilliness and flushes of heat for many hours, usually till the pressure on the heart is removed by some evacuation, more especially blood letting. This state of oppression, which so often counterfeits exhaustion, sometimes deceives the inexperienced practitioner to the great injury, and sometimes the destruction of the patient. The face is highly flushed, although in some cases the fever is not intense, and delirium frequently attends at periods in different cases. In some it is coeval with reaction, while in others, it is only to be observed in a more weakened condition, under a typhoid form of fever. In the advanced stage it is inauspicious, because the quantity of depletion necessary to subdue the cause on which it depends cannot be safely employed. This symptom can almost always be prevented by early and copious depletion.

The eyes are sometimes prominent and suffused with blood, representing the aspect of phrenitis, which without copious evacuations is soon followed by symptoms of disorganization with delirium and increasing debility. In certain cases the pulmonary symptoms are indistinct, and the cough is but little noticed, and hæmoptoe sometimes supervenes, when it is not expected, especially where early and free evacuations have been neglected. Expectoration is less copious than in pneumonia vera, and commences at a later period. The complexion of the sputa is usually different from that of common pneumonia, and indeed all other pulmonary affections. It is more or less tinged with bile, imparted to the secreting vessels by the circulating blood, from which it receives many shades, from a deep brown to a pale straw color. The expectoration is sometimes suspended or arrested by a spontaneous diarrhœa or free catharsis, and with a tendency to great debility cannot always be restored. The full impression of mercury upon the salivary glands is the best security for the duration of a salutary expectoration, and will sometimes restore it, if it has been suspended.

Blood is frequently mixed with the sputa, and if the quantity is small and florid no unfavorable conclusion can be drawn from it; but when it is dark, after long extravasation, it is an inauspicious omen. Patients never recover who spit it, unless the quantity is very small. It is no little consolation to a
physician to be assured, that those untoward appearances could have been prevented by early and judicious evacuations, though it is often to be regretted, that a proper sense of danger, does not always prompt the patient to secure advice in due season. The type very generally marks the character of the disease. It is never continent, and although continued, usually remits, at some time, at least once in twenty-four hours, more frequently in the morning. The local affections are somewhat mitigated during the remission but fermented at the same of the paroxysm. In some of the milder forms, the fever nearly approaches the intermittent type, although the chill is not always repeated as it is in the pleuritic intermittent, and in such cases the thoracic affection and headache are scarcely felt till the fever exacerbates.

The condition of the stomach frequently approximates very nearly to that which is observed in bilious remitting fever, and opposes an impediment to the cure, and is never quieted unless by blood-letting or purging, except in the milder forms. A copious ejection of bile from the stomach is frequently observed, and of the same vitiated quality which is seen in autumnal fevers, and like the bilious remittent, those cases are the most intractable in which the secretion is suspended. During the total failure of the secreting process, the case sometimes assumes the complete character of colic, and a spasmodic affection of the intestines is well marked, although inflammation is generally present in a greater or less degree. In this congested state of the liver and constipated state of the intestines, the case sometimes terminates fatally in two or three days, and in a few cases, mortification of the duodenum has been found. The stomach also is inflamed, though not in every case, in some the black vomit is as perfectly formed, as it is in the yellow fever, though it is not so often followed by death. It commences by a secretion of a lighter hue, resembling the juice recently formed from tobacco, partially macerated in the saliva, and gradually assumes a darker shade.

The tongue presents various appearances, different from those that are to be observed in any other species of pneumonia. They denote hepatic rather than pulmonic disease. In the higher degrees of inflammation it is white, but not the pure unmixed color to be observed in other inflammatory fevers. The secretion presents the appearance of cream mixed with earth, and has been designated by the word dirty. The secretion is free and preserves this appearance during the higher state of action, usually during two or three days. When the action
begins to subside and debility succeeds, it begins to change and a drier brown appearance succeeds. In this it resembles remitting fever, but there are many cases in which we observe a different appearance, which seems to represent the state of the blood. It becomes yellow, sometimes resembling sulphur, and occasionally flocculi of this color stand erect over the whole organ. It varies from the slightest yellow to a dark orange. In the lesser degrees of action, it is not so apparent, but becomes incrusted and smooth. During a free hepatic secretion the tongue continues moist, but when it is deficient or absent it becomes dry and hard. In some of the more chronic, typhoid cases the tongue is but little altered for several days from the accession of fever, though it is brown at first, and unless the more prominent symptoms are arrested, it becomes drier, darker, and sometimes black as in typhus gravior. The feeblener the action of the heart at the commencement, the less is the secretion from the tongue, and the greater the departure from a natural appearance. In some cases that put on the low typhus type, there is scarcely any change, except from a natural to a deep red, raw aspect resembling raw beef.

The skin is more or less disposed to secrete, according to the degree of fever, though there are exceptions to this rule. It is sometimes as dry, hot, or pungent, as in the higher degrees of bilious remitting fever, and no mador is perceptible even in the remission. In the milder forms it is sometimes natural, as to heat and moisture, though in others, no moisture is to be observed till a crisis shall have been effected. A profuse and long continued sweat, is scarcely to be found in this disease, unless it be in the cold clammy form, in an abject state of debility in the latter stage, which usually portends dissolution. It cannot be effected by the relaxation by evacuants, or stimulating diaphoretics.

The urine, though at first limpid and sparingly secreted, soon assumes a deeper complexion, which approaches to yellow, and finally assumes all the intermediate shades, to a dark brown red, and sometimes black, resembling strong coffee. It frequently clearly indicates the actual presence of bile, and imparts its proper shade to the linen and other articles of clothing. During the subsidence of the fever, and especially at the crisis, it deposits a lateritious sediment, but this is only to be observed in protracted cases. When the disease has been abridged or cut short, by early and copious depletion, this appearance is never seen.
The symptoms enumerated bespeak the pathology of the disease; but they differ materially in different seasons and in certain localities. During the observation of a series of years, we find, in the same place, all the intermediate gradations of action, from synocha to typhus gravior. In the early stages, the symptoms are usually well defined, and by an appropriate energetic treatment, they will not transcend these bounds, but uninterrupted by art, they implicate other organs, and become so complicated, that they seem to defy every attempt to define or arrange them. If we were to observe a rigid adherence to nosological arrangements, we might give as many names to certain cases as there are symptoms expressive of the morbid state of the several organs concerned. The lungs, pleura, bronchia, trachea, pericardium, diaphragm, liver, peritoneum, stomach, intestines, and mesenteric glands, have been found diseased in autopsic examinations. These ravages of inflammation so widely spread, are to be found in protracted cases, where the action has not been of the highest degree, not sufficient to occasion disorganization in the first stage, or where the case has been treated by a temporizing palliative practice.

We have found all these organs deeply implicated, and after the most minute inspection, have been astonished, that the patient should have sustained such a mass of disease till the twentieth day, and sometimes longer.

The danger to be apprehended in this disease, arises from circumstances which appertain to no other disease in the same degree. The accumulation of the excitability from a diminished temperature, superadded to a body already weakened by a miasmatic predisposition, while it is prepared to raise morbid excitement to the highest degree, reduces the nervous system to a point which is incompatible with so vehement an action of the heart. Hence we find the most prostrate state accompanying the most obstinate and unyielding local affections; and although the vital powers are often rather oppressed than exhausted, the system viewed in its integrity presents indications diametrically opposite. Under a predisposition derived from malaria, the vessels are more fragile, and in no disease is effusion, especially in the lungs, so easily occasioned. The great debility, at so early a period, in a state so inflammatory, will not always sustain the evacuations necessary to arrest disorganization, nor even to arrest the speed and progress of inflammation. Notwithstanding these difficulties with which we are encompassed on all sides, and which are sometimes insuperable, they are more formida-
ble in appearance than reality. The neglect of the patient, and the timidity of the physician, frequently entail such embarrassments upon both parties. Early and copious depletions, judiciously directed, will, in a vast majority of cases, place the system beyond those contingences so much to be deplored.

It is the insidious and deceitful appearance of universal prostration, that has given rise to an honest difference of opinion in the treatment, and has induced so many to view the disease as a typhus, to which they constantly attach the idea of a forlorn state of debility, and associate the application of stimulants and tonics. This opinion has eminently contributed to an unsuccessful and fatal practice. The impropriety of the stimulant practice has been fairly tested by the total failure of all exciting means to restore the system to health, or by any remedies but evacuants. It is very natural that different pathological impressions should suggest different treatment, and hence some have condemned blood letting unequivocally, while others have employed it so parsimoniously as to render it useless. It would be superfluous to insist on the use of the lancet were it not that it has been so strenuously opposed by high authority, but in every such instance, by those who have not seen the disease, except in the typhoid form, or whose prejudices have sheathed the lancet, without a fair experiment. A small pulse, with great seeming prostration, with all the correspondent signs of exhaustion, may easily deceive, while blood letting alone is capable of arresting a fatal termination.

The appearance of the blood drawn from a vein, in this disease is often peculiar, and nothing so clearly illustrates its true character. In the more inflammatory affections, the crassamentum is contracted into a small cup, and instead of a white, a yellow buff marks it throughout, and it is thicker than in pneumonia vera. In such cases we find a red precipitate at the bottom of the receiving vessel. The serum is never of a natural color, but varies from the lightest shade of yellow, to a deep orange hue. In the more violent degrees, some will bear the loss of eighteen or twenty ounces of blood to great advantage, and when this quantity is taken very early, it is decisive; but this is not the fortunate issue in a majority of cases, for it has been found by long experience, that copious single bleedings, often occasion great prostration, and therefore, as a general rule, it is expedient to draw less blood, and to repeat the operation, according to the exigencies of the case. Blood letting often diminishes
the force of the pulses, while it increases their frequency: it will mitigate the pulmonary symptoms, but for reasons to be noticed under the head of cathartics, the disease will be suspended, but not cured. Blood letting may be repeated in portions accommodated to the state of the circulation, as long as inflammatory symptoms are clear, provided we proceed pari passu with purgatives. It is undisputed by all who are conversant with the disease, that cathartics will not act freely in the early stage, unless they are aided by blood-letting, and it is equally true, that the loss of no quantity of blood will cure it, without the cooperation of proper cathartics, except very rarely at the accession. If it were practicable to effect easy and copious alvine evacuations, without the subsidiary powers of the lancet, the milder forms, might be cured by drastic cathartics alone. Nevertheless, we are not to conclude, that blood-letting is not to be employed in the less virulent states of action. The apprehension of a dangerous debility is visionary, and nothing contributes more to diminish the vitiated secretion of the liver, than the loss of the fluid from which it is secreted, and with which this viscus is often congested. If a state of apparent collapse supervene, especially in the early stages, with a pulse less distinct, vermicular and continuous, but capable of resistance upon pressure, we are not to conclude without some imperative reason, that we can no longer draw blood, but we are to use it in a more economical mode. We may with safety draw four, five or six ounces from the arm, or we may adopt the more circuitous and indecisive practice of leeching and cupping. Neither of these evacuations should be resorted to, while the vital powers are able to sustain the loss of blood from the arm. They have so often failed to reduce the pulses and mitigate the symptoms, and are so often injudiciously substituted for the radical mode of blood-letting, that experience condemns them.

In all cases of prostration from febrile action, with a depressed pulse, yellow tongue inclining to dryness, and other indications of approaching exhaustion, the blood assumes appearances very different from those exhibited in the early higher degrees of action, and indeed peculiar. While it is flowing from a vein, it is less florid, less consistent, and may be aptly compared to muddy port wine. It separates slowly and sometimes remains a loose mass without distinction of parts. When a low exhausted state succeeds to a protracted inflammatory action, the whole mass resembles the washings of raw flesh, molasses, or tar, and is
sometimes as black as ink. Similar phenomena have been observed in small pox and malignant measles, and were denominated putrid by the ancients. In an intermediate, less active vascular action, there is a partial separation; the surface is not contracted into a hollow form, but a thin pellicle of dark blue or purple, sometimes inclining to green or yellow, covers the half separated mass. A portion of the serum sometimes covers the whole surface, and like that below is turbid, wearing the appearance of dirty milk and water. Although these appearances in the blood are the concomitants of great weakness, and usually augur unfavorably, they are not necessarily followed by a fatal termination. We have drawn such blood from the arm, and after having repeated the operation have found the crisis of the blood restored and convalescence succeeded.

Although we have drawn all the intermediate portions of blood, from one ounce to fifteen bleedings, eight ounces each, in the same case, we cannot say that we have had reason to regret the most sanguinary practice we have employed, and we are rather bound to declare, that a more timid practice is less successful, and that a parsimonious effusion of blood has detracted from the utility of the remedy, and cast an unmerited reflection on the lancet.

Notwithstanding the high estimation in which we hold blood-letting, we cannot dispense with the use of cathartics. They are indispensable to remove the vitiated hepatic secretion, which constantly acts as a morbid irritant, unless it be evacuated as fast as it is secreted. In a profuse flow of vitiated bile, no loss of blood, however copious, will reduce the action of the heart. It will render the pulses smaller and more frequent, but not less tense, although a profuse alvine evacuation of green or black bile will both soften it and lessen the number of pulsations. This fact is often observed in other diseases in which the liver is deeply concerned, such as bilious remitting and yellow fever. It is true, that early and profuse blood-letting sometimes lessens the necessity of repeated cathartics, but when the highly inflammatory state has passed away without the strong impression of blood-letting in the first instance, we are obliged, to rely rather on a free and repeated catharsis than blood-letting; and in such cases, if we were to be restricted to the use of one remedy, the former ought to be preferred. In some cases, the sensibility of the system seems to accumulate in the ratio of the loss of blood; and in all such, it is not to be attributed to the influence imparted to the
Heart by the abstraction of any quantity of blood however great, but to the irritation of a poison, exerting an unnatural stimulus to the nervous system. The cessation of the effect from the removal of the irritating cause proves the position and solves the difficulty that has been received as a problem. The choice of a cathartic depends upon the quantity of disease. As a general rule, it might be supposed, that in so manifest an affection of the liver, mercury would be clearly indicated, and that it could not fail to subserve our purpose, but there is often a heightened excitement, accompanied by an exquisite excitability, that is increased by it in this, as well as some other inflammatory affections. It is for this reason that we can avail ourselves of the Proto-chlorid so advantageously; in a less sensitive condition of certain visceral diseases. Hence it becomes necessary in this affection in an aggravated degree, in its first stage to employ other cathartics, and avoid the more permanent sui generis action of mercury. In a reduced state of action it emulges the liver, mitigates the virulence of the hepatic secretion, and frequently puts a period to the disease, although it is often necessary to aid it by milder aperients, which are more strictly cathartic. Where there is no secretion of bile, we cannot dispense with this remedy, which sets the secretion afloat, although it will not pass it off without the assistance of other means. In deep congestion and a defect of secretion, the stomach is often irritable in the extreme, and perhaps all other cathartics will be rejected. In such an event the doses of calomel should be large and frequently repeated, till the morbid irritability shall have been mitigated or quieted. If the quantity be large, it cannot all be ejected from the stomach, and it will sometimes purge before the secretion is restored, and when we have good evidence of a return of the secretion, the irritability ceases, and there is no occasion to continue it. Large doses irritate less than small, and indirectly act as sedatives, by increasing a copious flow of mucous fluids from the upper intestines. In all such cases enemata should be used frequently and repeated, till our object shall have been accomplished. The safer rule to be observed in the exhibition of cathartics, is derived from the color and consistence of the matters evacuated. They should be natural, or such as present no vitiated appearance, and we find that the improvement is usually in the exact ratio of the change.

Emetics.—The prevailing fashion in medicine, which is not always founded in pathological propriety, has for some years depreciated the value of emetics, while it has exalted the merits
of cathartics. It must nevertheless be admitted that there are incidentally conditions in pneumonia biliosa, in which emetics are useful and even necessary. If it were not that the pulmonary and hepatic affections are too violent to admit of the application of the remedies, it would be difficult to find one founded on sounder pathology. In the lower order of cases, without deep congestion and high inflammation, whether the case has commenced in this form, or has been reduced to it by depletion, emetics are essentially useful. In the typhoid state, they are eminently useful, and may be employed with the greatest benefit at the accession of the disease: they present several advantages. The cerebral affection seems to arise from the state of the liver, an opinion which is corroborated by the removal of headach and stupor by an emetic. The almost unbounded sympathetic influences of the stomach, besides the mechanical effects of an emetic, are all in some degree affected by the operation. They determine the fluids to the capillary vessels, and thus promote the secretion of the skin, which is often defective or absent. They emulge the biliary ducts, and facilitate the operation of cathartics. In the milder forms they diminish or remove the irritability of the stomach, by suspending or arresting the further secretion of the liver. In the forming state of the disease, if it be of the milder degree, an emetic has been known to put a period to the case, without the aid of other means. Even after the enfeebled state of the heart would seem to indicate the employment of artificial excitement, they may be safely and usefully combined with the stimulating diaphoretics, such as the carbonate of ammonia, camphor, polygala seneka, serpentaria, and many others.

Antimonials are scarcely admissible in any state of the disease. In the irritable state of the stomach, they harrass the nerves, while the disease is highly inflammatory, and in a less degree of action they occasion weakness. It is only as an emetic that they are useful. They are sometimes united with opium, as a diaphoretic, but seldom confer any lasting benefit. Opium nor any of its various preparations are scarcely admissible, though such a contingency is possible. A teasing cough sometimes remains after all the other symptoms have subsided, and an anodyne may be required to procure sleep. Some have attempted to calm the turbulent state of the stomach by opiates, during the existence of fever, before suitable evacuations have been effected. It is scarcely necessary to remark, that they have never repeated the experiment.
The warm bath has been used under different conditions of fever, and this may explain the different and opposite opinions that are entertained of its value. There can be no longer any dispute as to the propriety of the practice; for like all other means, its usefulness is confined to a particular state. In a reduced state of fever, when it cannot impart so much stimulus as to increase the local affections, or reproduce them, it diffuses healthful action over the whole system, opens the capillary secretion, and frequently procures sleep.

Tonics have been unnecessarily and sometimes injuriously employed, after a reduction from a higher state, as well as in cases originating in a low feeble form. It is possible that this class of medicine may be useful, in some cases where the stomach is indisposed to receive nourishment, or will not perform the office of digestion. This is the state in which corroborants are adapted to the removal of debility and not disease; but as long as there is the least remnant of fever they are not indicated. In such as are imperfectly cured, the stimulant or tonic treatment revives the symptoms, and in all such cases, a predisposition to have the symptoms renewed remains. A relapse is seldom seen, when the original disease is extinguished; never, unless from a continuance or a repetition of the remote cause.

Art. II. Observations on the Pathology of Fever. By John P. Harrison, M.D. of Louisville, Ken.

The thesis chosen for the following remarks, is one of great moment, for it is fraught with results the most extensive and influential to the cause of practical medicine. The momentous importance of this subject arises from the wide spread nature of the malady, its great mortality, and the acknowledged difficulty and embarrassment, which attend its true pathology. More than half of the human family die of fever, in some of its diversified forms or types. It is known and recognized as the most prolific outlet to the lives of men in every region of our globe. And although of every day occurrence, and a disease of the greatest familiarity of appearance to the physician, its nature, seat, and treatment, are yet in a militant state. On no disease is there such an endless diversity of opinion among physicians, as on fever. And this discrepancy of view, has not originated from a mere speculative consideration of the questions involved.
To the investigation of fever, genius the most penetrating and brilliant, and industry the most arduous and persevering, have both lent their aid, and co-operated in their efforts to clear the subject of every obscurity. "The intellectual power," still seems to have "sounded a dim and perilous way" along the in-terminable difficulties of the question. Acuteness of intellect, aided by great compass and variety of attainments, have toiled nobly in this part of the field of practical medicine. And all the speculative tendencies of the mind have been exercised to give birth to plausibilities and fallacies, that have "cheated the eye with blear illusion," and often imposed a "gay delirium for a truth."

Were we to be governed by a deference to authority the ne-ce-sity of additional reflections on the pathology of fever would not exist. Deference to great names, however proper within certain limitations, when it degenerates into a vague and undis-tinguishing admiration, consecrates in a mass all the errors along with the truths of an eminent writer's theory. In order, there-fore, to enter upon the examination of the pathology of fever with a desire to ascertain the truth, we must dispossess our minds of the misleading power of prejudice to authority; we must endeavor to exercise that philosophical φαραγι, —that reserve of mind, so essential to the discovery of truth.

Is fever a constitutional or local disease? This is the question proposed for examination in the following reflections. By a constitutional, in contradistinction to a local disease, is un-derstood an affection which in a primitive manner, involves the general system, and whose origin is not dependent on any local inflammatory action, although in its progress it may induce le-sion of one or more of the organic tissues. Though fever pos-sesses no one pathognomonic symptom, no one symptom taken separate and apart from the accompanying signs, by which it can be discriminated from other diseases, yet there is a group or combination of phenomena presented to the eye of the observer, by a patient suffering under fever, which clearly distin-guishes the character of that complaint. Neither the pulse, the state of the skin, nor any function of the body taken in an isolat-ed way, can determine the presence of fever in the system. The pulse may be quick, or it may be slow; it may be much disturbed, or it may be of the natural rhythm in fever. The skin may be hot, or cold, or of a natural temperature, whilst a patient is laboring under the disease. And these opposite states of the pulse, and diversified conditions of the skin, may, and do
belong, and attach to many and opposite affections. What then is fever? Is it an abstraction of the mind, or a substantiality? From whence does it derive its name?

Fever is known, as the logicians say of a subject, by its predicates. It is a generic term to denote a certain congeries of morbid action manifested by a train of functional signs. Aside from the phenomena, apart from the symptoms which indicate its presence, fever has no real existence.

Fever is a unit in one sense only, it possesses a unity, or individuality of existence, as respects the extent of its agency, and the precise limitation of that agency on the system. Were it not thus a unit, it would no longer be fever, but some other disease of an entire distinctness of character.

Thus small-pox is a unit; and in this sense, gout and rheumatism possess an original individuality and unity of character.

Fever in one great leading point of analogy, is like small-pox or rheumatism; it is seen affecting the system in a manner which is so peculiar to itself, as readily to enable the discerning eye to detect its presence, whenever its features are well marked, or its prominent outlines are not concealed by some rare conjunction of circumstances. Fever is in its essential characteristics the same all over the globe. Thus a faithful history of a case of fever at the equator, reflects light on any case which may occur at the poles. Not that the extrinsic causes which produced that series of morbid actions in the system, which we denominate fever, will not impress upon it a subordinate and accidental variety; not that the temperament of the individual, and the nature of the causes, predisposing and exciting, will not modify the character, and either meliorate or enhance the violence of the seizure. Still the great and pervading hues of the disease are seen blended in every symptom, and they lend their complexion to every manifestation of the morbid train of movement going on in the system. Otherwise there could no unity attach to fever, and we should receive no instruction from descriptions given of febrile phenomena. It is often said, that fever is a protean malady. But though such a remark be true as respects the form, it does not apply correctly to the nature of the affection. Fever, "though changed in all, yet is still the same," in its essential pathological character. Its symptoms vary, and the aspects it assumes are as endless, as the rapid transitions of thought, yet in all its semblances of transformation, it preserves its unity of pathological character. And in what consists this unity? What are the elementary or fundamental properties upon
which we shall rest our views of its pathology? Is fever a constitutional affection, bearing in one, and one only feature, a resemblance to rheumatism, or gout? Does it depend, as the last named affections, on a general derangement, determined to some of the tissues by the nature of its action, and the intimate harmonies which bind together the various parts of the economy? Or, is fever a mere local inflammation, bearing a close resemblance to pleurisy, or bronchitis, and does the constitutional derangement stand merely in the relation of an effect to a previously existing cause? If fever has a local origin, is the point of irritation and inflammation in the brain, or its membranes, or is it in the spinal cord; or is it in the ganglionic system of nerves; or is it in the stomach and intestines? If in the stomach and intestines, is it in the mucous follicles, or in the glands of Peyer and Brunner? Or perhaps the point of irritation may be in the liver; that organ being congested with black blood: or shall we say that acrid bile, may be the fons et origo of all the febrile phenomena?

In answer to the question, put at the commencement of this discussion, I reply, that fever is a general, or constitutional disease. And this opinion is grounded on four unquestionable sources of arriving at the truth in this matter. 1st. From the nature of the predisposing and exciting causes, and their mode of operation. 2d. From the symptoms. 3d. From the best methodus medendi. 4th. From post mortem examinations. In the consideration of the atmospheric causes of fever are included the physical qualities of the atmosphere, idio and koino miasma, as well as those insensible meteoratious conditions, which give rise to the most terrific epidemics which afflict the race. What are the general causes of fever, and how do they operate? The atmosphere is the great laboratory in which the causes of fever are manufactured. It is the most prolific, nay, the almost exclusive source of this class of diseases. Physical changes of atmosphere will produce sporadic cases of fever. And so will various irregularities of diet. But the worst attacks are the result of the agency of a vitiated condition of that fluid. Koino and idio miasma produce the most fatal forms of febrile disease. In what way do they operate? If we were to accept the gratuitous explanation offered by the humoralists, we would urge a very copendious mode of getting rid of the difficulty. These febrifuge particles absorbed by the blood, so say the humoralists, deprive that fluid of a part of its vitality, or so inquinate it as to detract from its ability to carry on the functions of life, and thus they think by involving themselves in the reductio ad absurdum, to
satisfy every inquirer after truth. But escaping from such chemical fallacies, we must advert in an especial manner to the laws of life, for a correct explication of the mode in which such agents act. What then are the distinguishing qualities of vitality? The powers dependent on innervation, are the true peculiarities of animal existence. Without them, although the structure may remain perfect, and every part of the composite mechanism of our frame be entire, yet there will be no susceptibility to impression from the various substances which infringe on the organism from without, and no changes can be wrought on the living processes within, by the contact of the blood. To the nervous system, we must then look for a just explanation of the mode in which febrifugous agents act on the body. The sentient extremities of the nerves are expanded on the surface of the body, on the mucous tissue of the bronchia, and the various other parts of the complex structure of man. Let us take marsh miasmata as a cause of fever. There are gentlemen in our profession, who deny the existence and agency of such a materia morbi as marsh miasm. We cannot answer the many cavils raised against the many proofs, which careful observation has collected in favor of the production and fatal effects of a deleterious matter, generated by a hot sun operating on stagnant water. If physicians will delight in creating subtle objections and petty sophisms against carefully observed facts, let them reap the appropriate reward; the consciousness of originality in denying some of the best sustained facts in medical science. Miasmata act either on the lining cavities of the lungs, or on the stomach. It is exceedingly problematical that their agency is on the stomach, for if taken into that organ, they must undergo some alteration immediately, or act, ictu solis, as a poison, and consequently induce all the symptoms of the most lethiferous substance. Besides in all cases we should have gastritis, which is disproved by dissections, as well as by the symptoms. The milder agency of the marsh miasmata brings the system into a state of predisposition to bilious fever. An individual may however entirely escape an attack of fever, although strongly predisposed to it, if he carefully avoids the exciting causes! Now suppose a man were to take a portion of arsenic, or prussic acid every day, would he thus escape an attack of gastritis, until some exciting cause, such as an exposure to night air, or exercise in a hot sun, should excite it? A simple enunciation is sufficient to evince the unphilosophical nature of the opinion, that the stomach is first acted on by the febrifugous poison.
Analogy reflects some light on this point. Mercurial action can be constitutionally produced by the inhalation of the vapors of that metal. The fumes of arsenic inhaled, will create great constitutional derangement. The constitutional proclivity engendered by either the mercurial vapor, or marsh miasmata, will not abate for months. Thus when a man has been once miasmataized, he is liable, months afterwards, to a return of the local affection of the mouth, as well as of constitutional irritation, from the application of cold and moisture to the surface of the body. And so, as Bancroft tells us, the British soldiers who were exposed to the agency of marsh miasmata at Walschen, were taken sick with fever and ague months afterwards, although they lived in healthy districts in England. Whenever the system labors under a predisposition to constitutional disease; it is constantly liable to have that predisposition roused into disease by the application of the exciting causes. Thus in hereditary affections such as mania, gout, rheumatism, &c. there exists an abiding constitutional tendency to some particular disease. This hereditary proclivity to disease, is only known in many instances, by a knowledge of the parentage of the individual.

Marsh miasmata generate a constitutional tendency, termed predisposition to a disease of a particular kind. They operate by impressions, engendered on the mucous tissue of the bronchia, and thence imparted to the general system; and by bringing the entire compages of the organs, through the nervous power, into a condition susceptible of being carried into a series of morbid processes, termed fever, by the application of some irritant.

The symptoms of fever declare its general nature. They indicate the universality of its presence. The nervous, vascular, and secretory functions are, in their varied modes of action, all brought under the dominion of fever. The intellectual operations, early in a febrile attack, become confused—the faculty of perception being deranged, and the capacity of mental deduction much abridged. The other offices of the nervous system are likewise in a subdued, or perverted state. The heart and arteries respond to this depraved condition of functional power realized by the nerves. The secretions and excretions become in a greater or less degree suspended or vitiated. "This change in the action of the minuter series of organic tissues, wrought by the materia morbi, may be varied in form and degree by a
multitude of contingent circumstances.* Sometimes the head is more affected than the abdominal cavity, and at other times a general derangement of the principal functions of life with no local predominant affection is seen. Cases of fever occur where immediate prostration is so great that death ensues before reaction. Other instances are witnessed of a peculiar state of the vital powers, marked by protracted depression of the circulatory energies which are cured by direct and persevering stimulation. In the last stage of bilious fever, we often see a collapsed condition of the system, which is commonly termed the typhoid state, and which is curable by the judicious administration of diffusible stimuli. Were fever the result of a prior inflammation of some organ, whether that organ be the brain or stomach, then we should have an undeviating concatenation of signs, indicative of the peculiar morbid condition of the suffering part. But the semiology of fever contradicts this hypothesis of the local origin of the disease. Commencing with deranged action of the nervous system, denoted by sensorial disturbance, aberration of natural sensation, and defective energy of the muscular apparatus, the febrile process soon implicates the important secretory functions, and finally destroys the equilibrium of the circulation, giving rise to undue determinations to particular parts. It is utterly impossible that any constitutional disease, such as fever, should attack a system, whose nervous functions were in a state of healthy and vigorous exercise. Some cause acting either as a local, or general irritant must previously disturb the nervous functions.

Undue determinations of blood, abstractly considered, cannot be regarded as the real element, or determining cause of those inflammations, so often found in the brain, stomach, &c. of patients dying of fever. Excessive momentum of blood, either of the general circulation, or of parts, may obtain, without inflammation. If the organic sensibility and contractility of the vessels remain unbroken and undisturbed, the action of the heart may be much accelerated, and local determinations of blood may take place without any bad result. Thus in exercise the pulsations of the heart are increased as much as they are in fever, the face reddens, the whole capillary system is distended with blood, and yet no inflammation ensues.

The symptoms of fever, therefore, denote that previous to the increased action of the heart a peculiar condition of the nervous

system prevails, which is the real original link in the chain of diseased movement.

The recondite nature of innervation forbids any satisfactory explanation of the character of that state of the nervous system in which predisposition to disease consists. No physiological pathologist has ever yet lifted the impenetrable veil which shrouds this subject. In what peculiarity of the nervous system consists a predisposition, hereditary or acquired, to gout, epilepsy or hydrocephalus, or mania, and kindred maladies? The pathologists who, like Parry, reject all neurological explanations of disease, may refer all such predispositions to the relative development of the various subordinate systems of the body, by which more blood is sent to one part than another.—But even if peculiarity of conformation should satisfactorily explain the reason of the constitutional hereditary proclivity of certain individuals to certain affections, still this view of the question could not apply to those who have acquired predispositions to disease. In the latter no change of structure takes place, and yet they are constantly liable to attacks of particular diseases.

The signs of fever denote four stadia in a regular attack.

1st. Constitutional derangement of the nervous system. This derangement is not a mere debility, as Cullen contended. It consists in a departure from healthy functions, and in proportion to the degree of this departure will debility as a symptom, ensue.

Dr. Southwood Smith, has followed Cullen in denominating this state of the nervous system a debility. Well has Thompson in his work on inflammation, called debility an *asylum ignorantiae*. When a physician, either from defective analysis of a pathological point, or from the obscurity of the subject, has been foiled in his efforts to penetrate the mystery of a disease, he very adroitly, felicibus curiosis, with a rare felicity, enlists debility, or congestion, or sympathy to extricate him from his embarrassment.

This condition of the nervous system is denoted by a debility of its functions, and at the same time other irregularities and disturbances are manifested.

Travers in his able work on Irritation, has made some judicious remarks on the reciprocal relation of the vital functions. Wilson Philip, who may be considered the Corypheus of experimental physiology, has, in his recent work, made many interesting reflections on the same point.
I cannot pursue this point any further in this discussion, but would refer the inquisitive mind to the above authors for a more expanded consideration of the subject.

The symptoms indicating great disturbance of the general nervous system are erratic pains in the limbs, back and head—defective energy of mind, and confusion of thought, with restlessness, or torpor of muscular power.

The second stadia is marked by a perversion or interruption of action in the secretory organs, such as the digestive tube, skin, liver. Sometimes one, and at other times another of these organs bear the chief onus of the disease. In all urgent cases of idiopathic fever, it will be found that in a greater or less degree all the important secretory organs are affected. No cure can be accomplished unless the secretions are restored in all the great ruling organs of the economy. In exact proportion to the degree in which the functional integrity of the great secreting organs is deranged, so is the danger of a given case.

Oppression marks this stage of the disease, but when the third stadia is ushered in, which is announced by reaction and increased excitement, then the usual symptoms of fever are made known. Death sometimes interferes with the regular progress of the fever, the patient sinking under the shock inflicted by the noxious agent, and no reaction ensues.

The third step in the march of fever at times suddenly plunges the system into a condition of suffocated excitement, popularly but improperly denominated by many, congestion. For what is congestion, but a mechanical accumulation of blood? How can such accumulation, or remora, obtain in the veins without a previous remora in the arteries? But if the remora occurs, in both the arterial and venous blood as it must do in the diminished action of the heart which it is asserted gives rise to congestion, then no bad effects can possibly arise, as an equilibrium is preserved in both sets of vessels. Besides, what is inflammation, but accumulation, as Dr. Armstrong himself admits.*

The fourth stadia of fever is when the excitement terminates in inflammation of some vital organ.

The disciples of Clutterbuck and Broussais are equally positive in their location of the disease. One fixes on the brain and its investments, and the other takes refuge in the stomach and

* Vide, Treatise on Typhus, under head of common continued fever, p. 283, and likewise his work on Pulmonary Consumption, p. 159.
bowels. A third party plunge into congestion of the liver as the *passe partout* of pyreptic pathology.

And by what symptoms are they sustained in their several positions? One avers that pain in the head, intolerance of light and noise, and sensorial disturbance, are proofs positive of meningitis or cerebritis. The other fixes on pain upon pressure at the pit of the stomach, great thirst, a furred or red tongue &c. as manifestations of gastro-enterite. Whilst the congestionist sees in all these symptoms cogent proofs of the gorged state of the liver.

Now upon a correct view of the constitutional nature of the febrile orgasm all these discrepancies become reconciled, and all the apparent contradictions are harmonized.

And the most successful methods of treating fever bear us out in this pathological view. Can fever existing in different places, and taking place in persons of various peculiarities of temperament be treated in all cases alike? Experience, the most enlightened and unprejudiced, says no.

The epidemic fever of one year has to be treated essentially different from that of another. Dr. Rush tells us that the yellow fever which occurred in Philadelphia, in different years, had to be treated in an essentially different manner. In one year bloodletting and other depletory means were employed to a great extent, whilst in another season, bark was liberally given. Now if fever is nothing more than gastro-enterite, then stimulation is in all cases improper. What, cure gastritis by direct stimulation, remove inflammation by irritation? Our treatment of fever must vary with the rapidly emergent difficulties of each case. Upon the Broussain plan there is no need whatever of watching the state of the system, except so far as to keep the local inflammation down.

Bleeding, general and local, lavements, ptisans, and some very mild aperient medicine, make up the methods medendi of this class of practitioners in all cases of fever. Now the question comes up, will bleeding alone cure severe cases of idiopathic fever? According to the best authorities it will not. When there is but slight fever, bleeding may cure; but when the system becomes once generally affected, the various secretions locked up, and the patient already beyond the point of depletion by the lancet, then the disciple of Broussais must abandon the patient to his fate. The comparatively inefficient practice, *par la medicine expectante*, is a sad commentary on the progress of clinical medicine.
In the first stadia of fever there is sometimes such a degree of oppression that even stimulants are indispensible. After reaction we have to resort to blood-letting in order to abate the power of the heart, and thus prevent or cure inflammation of some vital organ. Dr. Southwood Smith contends that the only morbid condition, of which we have any knowledge, and over which the medical art has any control, is that of inflammation.* And he contends that "bleeding in fever cannot be performed too early." This is a great practical error, founded on an erroneous conception of the pathology of the disease. With Fordyce, Smith argues, that fever cannot be arrested in its march, it is only to be conducted to a safe termination, by guiding its direct and unavoidable progress. On the other hand, Dr. Robert Jackson, who is superior authority in such a case, declares "that the system of treatment recommended by himself—which consists in blood-letting, emetics, purgatives, &c., assures, for the most part, a speedy and decisive cure of fever."†

Were I to lay down a fundamental indication in the cure of fever, it should be comprehended in these words: the secretions are to be restored to their healthy condition. I have never seen a case of fever cured without a fulfilment of that indication. What are the best methods of attaining this end? Blood-letting is a valuable remedy in opening the way for the agency of the different remedies which act in a more direct manner on the secretions. Sometimes when the febrile act is recent, and there is very little functional disturbance of the organs of secretion and excretion, I have known a copious detraction of blood subdue the fever—but in every such case, the skin soon manifested the power of the remedy by a restoration of its natural functions. Blood-letting not only paves the way for other remedies, but often suspends and cures any inflammatory process which may be going on in the system. However valuable this efficient remedial resource may be, it is often abused. I have known patients bled in fever till convulsions, and fatal collapse were brought on. Marshall Hall's work on blood-letting should be studied well by the ultra phlebotomists. It seems the fashion—for our science unfortunately has its fashions as well as the gay world—to discard emetics altogether in the treatment of fever. But let not a fond desire of a glittering novelty in medical doctrine, di-

* Treatise on Fever, p. 388.
† Vol. ii. p. 205.
Harrison on the Pathology of Fever.

vert us from the well observed facts which lie treasured up in the archives of our profession.

In some severe forms of fevers emetics are inadmissible, but in a majority of the more common attacks, they are an unexceptionable and effective means of cure. What the operation of an emetic is in restoring the secretions, is familiar to every practical physician. Purgatives have likewise been proscribed by the French reformers of our science. Upon what grounds, let the disciple of Broussais answer. Having drawn from the magazine of fancy for a theory of fever, they boldly challenge an exclusive right of dominion over the field of febrile therapeutics. And will the corrosive salt of a fervid imagination eclipse the sober splendor, and guiding radiance of a just experience? But, say the eulogists of the French practice, we have tested its efficacy by our own experience. Well, there is a true, and there is a false experience in medicine, and the disciples of Broussais have as probably fallen into the latter, as Rush, Jackson, Johnson, and a host of others. Purgatives, according to the pathology of fever set forth above, cure it, first, by a removal of all irritation arising from feculent material in the bowels; second, by indirect depletion of the blood vessels; third, by restoring the secretion of the mucous surface of the bowels and of the liver; and fourth, by an operation on the nervous system, analogous to the agency of an emetic.

Small doses of tart. emetic cure fever by producing a restoration of the secretions. Mercurial purgatives act with more efficiency on the secretions of the liver and mucous surface of the bowels than any other class of remedies. In addition to its purgative action, calomel acts as an alterant, and when it produces a constitutional influence, subdues inflammation. Why is it that the mercurial action so readily arrests iritis, and prevents disorganization of the various organs when inflammation is present in them? Every discriminating physician knows, that when the excitement is high, the mercurial impression will not tell on the system. Bleeding, tart. emetic, and purgatives, must be employed cotemporaneously with calomel, when we wish to mercurialize the system, if the febrile orgasm is excessive. I have never seen a patient die of bilious fever when the constitutional agency of calomel was produced. Sometimes there is a local irritation about the mouth, created by the remedy, which does not secure the constitution from the further ravages of the fever, and this local action is often mistaken for the constitutional agency of the mercury.
The cold bath, when admissible, acts by subduing excess of febrile excitement, and by restoring the functional powers of the surface. Blisters, applied in the declining stage of fever, when the heat of the skin has abated, act as revulsives, or equalizers of excitement, and create a condition of the surface favorable to the influence of diaphoretic remedies. In order to compass the great end we have in view, the restoration of the secretions, stimulants judiciously employed, are frequently of indispensable utility, especially in the typhoid or sinking stage of fever. Very many patients are recovered from the sinking stage of fever, by a proper administration of tonic medicines. In some cases, remedies of the most inciting character, have to be employed in fever from the very moment of the seizure. A violent disturbance of the nervous system, will produce intense pain, without any manifestation of inflammation. Pain in the head, or chest, or in the abdomen, may exist in fever without any inflammation being present, in either of the organs comprehended under those terms. Stimulants and narcotics often relieve the neuralgic symptoms of low fevers, without in the least degree contributing any aggravation to the febrile orgasm, but with the most unequivocal proofs of advantage in the cure.

From the foregoing general outline of the treatment of fever, we are conducted to the inference, that fever is a constitutional, not a local, disease—and, consequently, that fever cannot be cured like a mere topical inflammation by depletion alone; but that the treatment must be modified, agreeably to the varying exigencies of each case. To cure fever, the penetrating mind of the skilful physician, must analyse the train of symptoms as they arise, and vary his remedial plan to meet the emergent difficulties of each case.

Post mortem examinations sustain me in this pathology. Here the disciples of Clutterbuck and Broussais think they have obtained the place to stand on—from which they think to move the world of error which rests on this subject. And what is the amount of the facts brought to light by pathological anatomy, in reference to the real nature of fever? Simply that the brain, or the stomach and bowels are often found inflamed in patients who have died of fever. Are these indicia of morbid action invariably present in all cases—and are they the effect, or the cause, of the phenomena of disease exhibited during life? Constitutional affections are often made known by local inflammation. Take gout for example. This is allowedly a constitutional disease, determined at particular times to the fibrous sys-
tem. And so it may be urged of serofula, that it is a constitutional malady, which is liable to encroach on nearly every tissue of the body. Suppose it should be contended that gout is a local affection in its origin, or that serofula had its rise in irritation of some one organ, what would the enlightened physician answer?

It is admitted, that in the majority of cases of bilious fever, which terminate fatally, organic lesions are found in the thorax, brain, or alimentary tube. But what does this prove considered apart from the symptoms? Why nothing more than that they are effects of fever. Necrotomy separated from symptomatology is not to be depended on as a sure guide in arriving at a correct conception of the nature of any disease. The symptoms during life must be carefully regarded, in order to know what functions are deranged, and then post mortem examinations either rectify the errors into which the symptoms have led us, or confirm the decisions of judgment made by careful clinical observations. An exclusive regard to the appearances made known by necrotomy, will never make a judicious practitioner. An eminent physician, himself a devoted and zealous cultivator of pathological anatomy, has very correctly observed, that to fix all our attention on what remains to be seen after death, is "a mode of judging of the character of diseases scarcely more just than would be that of a biographer, who would draw the character of his hero from the last act of his life only, without any regard to his previous conduct." The main hopes of the physician in the cure of fever, must rest on correcting or altering morbid function. Morbid function is not to be ascertained by post mortem examinations. The symptoms during life alone declare the morbid functions manifested in fever. A judicious and accurate mind, of ready tact, may attain pretty correct views of the pathology of functional diseases without the aid of post obit researches. Sydenham knew nothing of pathological anatomy, and yet a more judicious practitioner England has never known. And this great and original man saw much of fever, and derived his knowledge of the best method of treating it by a careful inspection of the symptomatology, and a watchful regard to the operation of his remedies. His pathology was erroneous—dark as the worst fallacies of humoralism could make it—yet let not the mere anatomist cavil at such errors, for whilst he stands with scalpel in hand, he is a living memento of the absurdities into which the mind is plunged in pursuit of truth, whilst it neglects the several methods of its attainment. Some of the most distinguished French physicians by no means coincide with Brous-
sais in his pathology of fever. Thus Lænnee, the younger, affirms that the organic changes which we find after death, in fever, are "évidemment posterieures a la fiévre"—that they are only "secondaire et symptomatique." He considers fever "as no way dependent essentially on local inflammation; for when the latter exists, the fever is symptomatic—in short, that inflammation is a mere contingency, that may or may not take place in the course of idiopathic fever. Of the contingent inflammations he has found those of the thorax the most frequent. The sanguinous congestions which we observe in dead bodies, take place, he thinks, for the most part during the agonies, or even after death."

The following cases of fever are from the Medi-Chirurgical Review, for July and October, 1825. They were extracted by the editor of that journal from the Revue Medicale. "One case of remittent fever terminated fatally and unexpectedly, in the fourth paroxysm, and dissection did not exhibit (according to M. Martinet) any adequate cause for the fatal issue." In this case, the "stomach and intestines, inner and outer tunics, were in the most perfect state of integrity, excepting that they were unusually pale in color."

A young man, eighteen years of age, entered Hotel Dieu, with fever, having been affected with it fifteen days anterior to his entrance. In this case there was tenderness of the epigastrium—he had diarrhoea—wandering pains in the abdomen, &c. "The most rigorous examination after death could discover no race of disease, to account for his sudden death, in any part of his body."

Another young man, nineteen years old, of strong constitution, "had been ill some days before he entered the Hotel Dieu, leeches having been applied to the head and epigastrium. He was affected with diarrhoea and fever. Eighteen leeches more to the head, as he evinced some delirium. Next day (7th February) the belly was rather swelled and painful. He was leeched there, and bled from the arm. The blood was inflamed. 8th. No amendment. The fever is higher—the diarrhoea continues. 9th. Much delirium—dilatation of the pupils—tongue dry—twenty-five leeches behind the ears. 10th. In the same state. 11th and 12th. Intellects much clearer—the fever persists, but is moderate—the diarrhoea continues. 13th. There is some subsultus tendinum to-day. 14th. Continues to sink. 15th. Died.

Dissection.—The membranes of the brain were transparent, and the substance sound. No effusion in any part of the head. The thoracic viscera were perfectly healthy. Abdomen. The mucous membrane of the stomach and small intestines quite pale, and in a most perfect state of integrity—"dans le meilleur état possible"—the internal surface of the sigmoid flexure of the colon presented some very trifling blush of redness—all the other abdominal and pelvic organs remarkably sound. Well may the physician say, that "certes, il est impossible de trouver ici une gastro-enterite, ou de reconnaître les traces d'une arachnitis." Let the disciples, says the able editor of the journal whence we extract the above, ponder on these facts—and still aver that there is no such thing as idiopathic fever—that all fevers are gastro-enterites or phrenites!"

Tweedie, in his Clinical Illustrations of Fever, gives fifty-four cases of dissection of patients dying of fever. Out of the fifty-four cases, the abdominal viscera were perfectly healthy in twelve. I shall give an extract from his catalogue.

"David Lake—membranes and substances of the brain vascular—left lung hepatized—lymph on pleura—pint of sero-purulent fluid in left thoracic cavity—abdomen healthy.

"Maurice Roche—head healthy—abcess in left lung—abdomen healthy.

"Charles Tyler—head healthy—bronchi inflamed—miliary tubercles—abdomen healthy.

"William Ashley—inflammation of brain and membranes to great degree—chest healthy—abdomen healthy.

"Margaret Sheppard—effusion in the ventricles—adhesions of pleura—abdomen healthy."

The above quotations will be sufficient to prove that dissections must completely sustain the idiopathic, or constitutional pathology of fever. Besides the above apposite and very ample exemplifications of the position taken, the testimony of the illustrious Robert Jackson might be adduced. Dr. O'Halloran, who dissected patients who died of the yellow fever in Spain, tells us, he found the eye-ball, kidneys, and liver, all inflamed in some cases.* But I shall only refer to such high authority, and adduce some of my own dissections to substantiate the doctrines advanced.

Roland,—a boatman,—came into the Louisville hospital on May 3d, 1827, affected with bilious fever of several days duration. He is just from Orleans, where he contracted the disease,

Symptoms. Full and strong pulse—tongue furred—heat of the skin not very great—bowels in a state of looseness. Was ordered a purge, but before it operated he died. Dissection.—Head healthy—thorax healthy. Abdomen. After the most careful examination of the viscera, no trace of structural disease could be seen.

Thomas J. Brown—aged twenty-two years—admitted on the 18th of April, 1831, into the hospital. He is from the south, having lately come up the Ohio—has had intermittent fever for nine weeks—great prostration of strength—is affected with hurried respiration—has taken no medicine to purge him, except one dose of salts. Sulphate of quinine has been taken, without arresting the ague and fever—ordered twenty grains of calomel. 19th. Some pain in the head—has had several dark colored evacuations from the bowels during last night—respiration still difficult. 20th. Purged again with calomel, assisted by oil—no better. 21st. Worse—omit purgatives, and stimulate with wine whey. 22d. Worse. 23d and 24th. Still sinking. 25th. Died this night. Dissection. Lungs tuberculated, and adherent to the ribs. Abdomen. Spleen indurated—bowels perfectly healthy. The above case has been politely furnished me by Mr. Allan, a young gentleman of intelligence, now a student in the hospital. I witnessed the dissection, and can confirm its correctness.

Jacob L. Brown was admitted into the Louisville hospital July 2d, 1831, with bilious fever. Has been sick fourteen days on the passage from New Orleans. Symptoms on his admission: Skin hot and dry—diarrhoea—pulse ninety, and full—heat and tenderness in the epigastrium. Treatment. Bled 3 xvj.—calomel fifteen grains—the region over the stomach scarified—capped at night. 3d. Worse—Rush’s powders every three hours. 4th. Better—small blisters over the stomach—continue the medicine given yesterday. 5th. Worse—delirium—pain in epigastrium—tongue red—subsultus tendinum—3 iv of blood were taken from the temples by cupping—spts. mindereri given in small quantities. 6th. Tongue dry—pulse small and frequent—alvine discharges thin and nearly colorless—whey whey and vol. alkali julep given. 7th. Coma—lies on the back, with legs drawn up and eyes half closed—extremities blistered. 8th. Died. Inspection of the body. Brain rather vascular—a small quantity of water in the ventricles. Thorax. Contents healthy. Abdomen. Stomach, intestines, liver, and the other organs perfectly sound. Upon a careful examination no trace of disease could be discovered in any of them.
I might multiply, to the great extension of this description, cases of a similar import to those given above, but the direct, positive and perspicuous illustration afforded by those already adduced is surely amply sufficient to convince every unprejudiced inquirer after truth, of the verity of the pathological views enumerated at the opening of this article. The elaborate and minute researches of Andral on the pathological anatomy of the digestive canal, has established the point beyond the possibility of refutation, "that nothing is more common than the absence of every species of pain in cases where numerous ulcerations cover the internal surface of the intestines, whether of the ileum, caeca, or colon. How frequent, also, is it, on the other hand, to see patients complain of violent pains in the abdomen, although the digestive mucous coat is not the least inflamed." The disciples of Broussais in France, differ on the exact site of the inflammation in the intestinal tube. Louis, in his work entitled Recherches Anatomiques, Pathologiques et Therapeutiques sur la maladie connue sous le nom gastro-enterite, &c. says, that in every case of fever, the elliptical plates of the bowels are the seat of lesion. "De toutes ces lesions une seule etant constante, ayant lieu chez tous les sujets, je veux parler de l'alteration de plaques elliptiques du petit intestin grele, &c." Others assert, that the glands of Peyer and Brunner are the seat of the lesion, whilst some state that fever is altogether dependent on follicular ulceration. I shall close this article by giving two additional cases of post mortem examination, in order to show that inflammation and ulceration may exist in the digestive canal, with but little febrile disturbance of the system.

A medical gentleman of this city requested me to examine for him the body of a negro man who had died suddenly under his care.

The patient had but slight fever, and he could not account for his rapid and unexpected dissolution. The symptoms, when he was called in, were slight pain at the epigastrium—pulse rather full and strong—tongue clean,—and skin hot,—was bled sixteen ounces, and a dose of calomel given. About fourteen hours afterwards, some adjuvant purgative medicine was ordered. This was in the morning; at three P. M., the patient having some fever, and complaining of nausea, three grains of tart. emet. was administered, in divided portions. No emesis, but sudden prostration came on—stimulants were given, but he died about five hours after the emetic was administered. Three hours after

* Paris, 1829, p 449, tom 1.
death the body was opened. Abdomen, liver, spleen and intestines healthy. Stomach was carefully separated, and examined. At the cardiac orifice, an elevated circular ulceration, of the size of a ten cents piece of silver was seen. On the greater part of the large curvature there was a deep blush of inflammation, with thickening of the mucous coat. Upon passing the fingers over this spot a ready separation of the inner coat took place.

The same medical gentleman requested me to conduct the post mortem examination of the following case. J. B. a young gentleman of sedentary habits was attacked with an uneasiness in the right side, just below the true ribs, several days before he applied for medical advice. A slight febrile action supervening he sent for his physician. He was bled ad deliquium animi—and took several doses of calomel for two or three days in succession. On the morning of the 7th day of his physician’s attendance the patient seemed rapidly convalescent. A dose of castor oil was ordered, and his medical attendant retired from the case. But in the course of an hour or two the physician was suddenly summoned to visit him. A copious eruption of blood from the bowels downwards had occurred. Sugar of lead and opium were given, without arresting the hemorrhage, of which he died in two hours. Dissection. Abdomen and chest opened. All the viscera healthy, but the ileum and colon. Small patches of ulceration on the lower part of the mucous coat of the ileum were seen—these increased in size as we approached the colon. At the valve of the colon a coagulum of blood was seen adhering to a deep ulcer. From this ulcer issued the hemorrhage which destroyed his life. The colon was distended with blood.

From a careful review of the foregoing facts, the corollary is fairly deducible, that fever is essentially a constitutional, or idiopathic affection. When we contemplate the nature and modes of agency, of the remote and exciting causes,—the symptoms of the disease,—the most approved methods of treatment,—and the post mortem appearances—we are constrained to admit that any theory of pyrexic pathology which circumscribes its regards to the local origin of fever is defective—that it is limited in its comprehension of the phenomena during life, and contradictory of the appearances after death. The intellectual power displayed by some of the advocates of the local origin of fever is in melancholy contrast with the great error upon which they expend the force of their faculties. I know not how better to
characterize such a theory of fever as that advocated by Clutter-
buck, or Broussais, than in the language of Virgil, speaking of
Polyphemus: Monstrum horrendum, informe, ingens, cui lumen
ademptum.

Louisville, Kentucky, Nov. 9, 1833.

ART. III. Observations on Death from drinking Cold Water
when the Body is Heated. By R. Tolifree, Jr. M. D. of
New York.

The singular phenomena and sudden death that attend the
drinking of cold water when persons are heated, or rapidly per-
spiring, must be worthy the attention of the physiologist and
physician. The instances which generally occur, arise in im-
prudent workmen after exercise and exposure to the sun, when
the heat is not less than 86° of Fahrenheit.

Persons under these circumstances taking an excessive draught
of cold water, are very soon seized with vertigo and obscuration
of vision, as is manifest from their actions;—they vacillate and
fall; their circulation is greatly disturbed; pulse hard, and irre-
regular; respiration laborious; and the extremities soon become
cold. The position of the patient, and the application of one or
both hands to the region of the stomach, before the sufferer is
prostrated, indicate considerable pain or uneasiness in that or-
gan. In fine, the whole frame appears like Laocoön struggling
with an enemy which is trying to destroy it, and which must
in a few minutes ensure its victim if not quickly prevented.
The treatment of this rapid disease is very simple, whilst un-
fortunately the use of our means too often comes when the lamb-
bent flame of life is ready to expire in its socket, and an endeavor
to foster the dying spark is all that is left to our untimely assis-
tance. The most powerful stimuli that we can administer inter-
ally must here be given. Some maintain there is but one cer-
tain remedy,—laudanum. This view is too contracted; for if
laudanum be not at hand, we should give alcohol, essence of
peppermint, &c. in doses much larger than usual. It should be
remembered, that time is more important for the safety of the
patient, than the selection of the most powerful agents after one,
two, or three minutes delay.

If the treatment is plain, the manner in which death is pro-
duced is on the other hand very obscure. Good places it under
his empresma gastritis, and considers inflammation of the sto-
macht the cause of dissolution. The stomach does not exhibit sufficient change from its normal state, to justify us in concluding that the extinction of life could only be the effect of such trivial alterations, as are discovered in its condition; and finally, the symptoms themselves would not warrant us in making this inference. Professor Bushe stated, (during my pupillage,) that in an individual he had examined, who had fallen a victim to this imprudent gratification, the stomach was injected with red blood, and the other viscera presented nothing very remarkable. Professor Francis informed me, while I was his student, that he had examined one or two cases of death from cold water, and intended soon to give his views to the world. What they are, I have never been able to ascertain, and perhaps my essay may elicit the result of his observations, which he has so long kept unknown. I have seen only one instance of this fatal rashness, which was in the person of a laborer, and as examples are rare, I trust it will be a sufficient justification for my appearing before the public. In cold water cases, the modus operandi can only be gathered from the symptoms; for the injury inflicted on the stomach is not adequate of itself to account for the fatal result, and we must, accordingly, turn our attention to the parts involved, which are essential to life, and see how the stomach acts on these vital organs.

John Hunter held the stomach to be the seat and centre of universal sympathy. The stomach is supplied with branches from the eighth pair of nerves, and the great sympathetic or intercostal nerve. The latter nerve is of vital importance in the functions of the thoracic and abdominal viscera, and should considerable violence be inflicted on it, other parts, (which have, by branches from the sympathetic a free communication with the part affected,) exhibit a derangement in their functions, or a total loss of their power, according to the extent and nature of the injury. The testicles receive branches from the intercostal, and violence to these parts excites excruciating pain, and sometimes nausea and vomiting. The kidneys have nerves from the same source, and we observe what those suffer who are the subjects of calculous diseases.* A nerve of such exquisite organic

* Death from the supposed wind of a cannon ball, and from which no derangement exists after death, have been explained by Larrey, Guthrie, Sir Gilbert Blane, and by others, in the Edinburgh Medical and Surgical Journal. Some have attributed death to a vacuum formed by the ball, and producing, from expansion of the vessels, rupture of their coats. This would be satisfactory if examination did not contradict their reasoning. Some have at-
Tolifree on Death from drinking Cold Water. 297

sensibility in many parts, giving branches to organs so essential to our preservation, and so little under the control of our will, must exert indirectly a great modifying power over the action of every part. If the great sympathetic be affected, laborious breathing and a disturbed state of the circulation will ensue. It is manifest, that a large quantity of a cold fluid introduced into the stomach when the body is excited, makes a violent impression on the nerves of the stomach, and consequently on those of the heart and lungs, at first through the medium of the nerves. But the shock given to the intercostal nerve, and the organs to which it is distributed, is not sufficient to explain all the phenomena, and the rapid termination of existence. It is unquestionable, that the deranged action of the heart, and the exertion of the system to overcome the disordered state of the lungs, must extend their influence to the brain, and be apparent in the manifestations of the mind. Another cause, which has a collateral bearing on the matter, is the cutaneo-pulmonic sympathy, and in short, the more or less evident sympathy of the skin with all the viscera. Many who drink largely of cold water, or take ice cream when freely perspiring, or those who come into a cold current of air when heated, generally experience a peculiar sensation over the surface, and in some it approaches to horripilation. This feeling shows the effect produced on the cutaneous vessels, which, when impeded, powerfully re-act on the abdominal viscera. All these circumstances combined, I consider to be partially the reasons to be assigned for the catastrophe incident to drinking cold water. It is known, that if we apply a ligature to the pyloric extremity of the stomach, fluids even in the largest quantities are quickly absorbed. This rapid disappearance of liquids from the stomach proves the activity of the absorbents of this organ, and must hold a conspicuous place

tributed it to electricity; others have contended that the absence of derangement in the viscera, was explained by the elasticity of the abdominal coverings and their contents. This last may account for the escape of lesions, but I know of no manner to explain the sudden death, except from the shock given to the great sympathetic. I hold that an injury to the nervous system, may be sufficient to cause a speedy death without leaving traces of violence, or rupture, or laceration. We all know, that if a portion of the body suffer from mechanical causes without abrasion, the nerves are generally first affected. If a foreign irritating substance be placed in the eye, the organ in the first place suffers from the pain, and subsequently becomes inflamed. Should death ensue in an injury to the nervous system before the inflammation is developed, the termination could not be assigned to a cause which had not yet appeared.

26  v.1
in arranging the causes of death which speedily results from the introduction of certain fluids into that cavity. Even if the absorbents did not act with vigor, the presence of a large quantity of cold water in the stomach, when the body is under the influence of heat, must rapidly diminish the temperature of the blood passing through that viscus. But when the cold fluid is taken up with celerity by absorption; and carried into the circulation;—when the blood is suddenly deprived of its accustomed quantity of caloric, it is plain that there is no trivial effect on the brain and whole nervous system. Baron Larrey has demonstrated, that the effects of agents are not always in proportion to their intensity; but according to the rapidity or slowness with which they operate. The most intense cold may be endured by the body if a gradual decrease in the temperature take place. However, should a speedy rise of the thermometer ensue, the loss of limbs or life is not unusual in high latitudes. Besides this, if one or more organs have been accustomed to the presence of certain irritating substances, and should we suddenly withdraw what John Hunter not unaptly styled the stimulus of distention, death will frequently be the result. For example, those operated on for retention of urine, and a bladder over distended for some time, are in no less danger from a hasty collapse of that organ, than from an infiltration of urine. If the speedy abstraction of a cause inducing disease has a fatal termination, is it not reasonable to calculate on sudden death from the rapid introduction of injurious substances?—I shall close by enumerating in order the different changes that induce death.

1st. A shock given to the nerves of the stomach, and from this an injected state of the vessels.

2d. The heart and lungs become affected by nervous communication with the stomach, and a difficult respiration and deranged circulation are the consequences.

3d. The circulation has more or less effect on the brain and nerves, as the symptoms prove to us.

4th. The rapid abstraction of caloric from the blood, and the violent impression given to the brain and nerves by this sudden change, accounts for the speedy death in cold water cases.

5th. The confined plan of a city prevents a free circulation of air, and the solar heat is also reflected by the roofs and buildings. The constant use of the pumps makes the water colder, while the component parts of our city water, and the mental and corporeal agitation of a great metropolis, all render its inhabitants more prone to suffer from copious draughts of cold water.

Art. IV. Observations on the Pathology and Treatment of Asthma. By E. Geddings, M.D. Professor of Anatomy and Physiology in the University of Maryland.

It has been somewhere remarked, that more real service may be rendered to medicine by the illustration of what is already known on the subject, than by attempts to promulgate new theories or new modes of practice. Disposed as we are, to concur, at least in part, in the correctness of this opinion, we propose to make a few observations on the subject of Asthma, which from the conflicting opinions which have been advanced relative to its pathology and treatment, seems to require that something should be done to elucidate its character.

Sec. 1. History of Asthma.—This disease was described by the Greek physicians, but they seem to have confounded it with other affections, the predominant character of which was a difficulty of breathing. Thus we are told by Celsus,* that when the embarrassment of the respiration was moderate, and did not threaten suffocation, they denominated the disease dyspnæa; when more violent and attended with a loud wheezing sound, it was called Asthma; and when it attacked in such a manner, that the individual could only breathe in the erect posture, they applied to it the appellation of orthopnæa. Herodotus, who practised at Rome during the reign of Trajan, treated asthma by burying those who were affected with it in the sand, and suffering them to remain in that situation until the paroxysm was relieved; and Aëteus who is generally so accurate in the delineation of diseases, has drawn a picture of this, which can scarcely be considered inferior to the best descriptions of it by modern authors.

"At the commencement," says he, "there is sluggishness,—slowness in all the actions as well of the mind as the body, difficulty of breathing following the slightest exercise, hoarseness, cough, eructations, &c. As the disease advances, the cheeks become flushed; the eyes protuberant; the respiration stridulous while the patient is awake, and still more so when asleep. There is also confused clangor of the voice, and a desire to be in the open air. As the fit declines, the cough abates, the expectoration becomes free, the voice clearer and more sonorous, and the sleep less disturbed."

Notwithstanding the disease was thus clearly described by the ancients, not much was done by them to elucidate its patho-

logy. Some of them referred it to a perversion of the nervous fluid, some to an acrid humor irritating the nerves, and others to a pungent serum generated within the brain, and conveyed from thence, along the course of the nerves, to the pulmonary apparatus. Van Helmont, at a later period, discarding the ancient doctrine of the four humors, attributed asthma to an error of the Archæus, which he conceived to be enthroned in the stomach, and to constitute the source of all diseased, as well as of all healthy phenomena. This principle, he supposed, sent forth from the stomach a peculiar fluid, which, when it becomes diseased, gives rise to a morbid state of the parts to which it was conveyed. He moreover imagined, that this fluid sometimes mixed itself with the male semen, and thus formed a compound, which as one of its constituents is the means provided by nature, for the propagation of the species, possessed the property of generating a disease of a hereditary character. Thus, when this compound was conveyed to the articulation, he affirmed that it produced gout, and when it took its direction to the lungs, it then occasioned asthma, which, from this circumstance, he denominat-ed caducus pulmonalis.*

To Willis, amongst the moderns, we are indebted for the first good description of asthma.—While his predecessors did not draw any line of distinction between those forms of difficult respiration which proceed from organic diseases of the heart, pleura, lungs, &c. and asthma, properly so called, he demonstrated that there was one variety of this affection depending upon a spasmodic action of the muscles and nerves of respiration. According to him, asthma is a difficult, hurried, and wheezing or sibilous respiration, attended with violent heaving of the chest, but generally, unaccompanied with fever.† He divided it, according to its cause, into three varieties: 1. A. mere pneumonicum, depending upon some disease of the lungs; as tubercles, abscesses, effusion of serum, calcarius degenerations, &c. 2. A. mere convulsivum, produced by a spasmodic action of the muscles and nerves of respiration; and 3. A. mixtum, arising from the combined agency of both these causes.

Floyer, who was himself a victim of the disease, published a very good essay on the subject. It has also been very well described by Baglivi, Riverius, Etmuller, F. Hoffman, Diemerbroeck, Ryan, Meyer, and in more modern times, by a great number of writers, who have contributed much to improve our knowledge of its true character.

* Van Helmont, pp. 240, 292. † Opera Omnia Amstel, 1682, cap. xii. p. 207.
It should be remarked, however, that notwithstanding the contributions of Willis, to give a more accurate definition to its nosological distinctions, pathologists still continued to group under the generic term asthma, an infinity of diseases of a very different character. Even at the present day, in despite of the fertile illustrations which have been revealed by pathological anatomy, so little attention is paid to diagnosis, that many affections attended with difficulty of breathing, are often confounded with asthma, which in their origin have no natural affinity with it. The numerous researches of Bartholin, Bonetius, Valsalva, Morgagni, Diemerbrœck, Kerkringius, Tulpius, Floyer, Hoffman, Lieutaud, Portal and others, long since demonstrated that a large proportion of the cases considered as examples of asthma, were properly organic diseases of some of the thoracic viscera, or even of the cerebro-spinal centre; and this has been fully confirmed, in modern times by Corvisart, Baillie, Burns, Lænnec, Rostan, Andral, and all recent contributors to pathological anatomy. So strong indeed are the facts upon this point, that some have even questioned, if there is ever a case of pure nervous or spasmodic asthma, distinct from, and independent of, some organic lesion of the thoracic viscera.

By Cullen, asthma has been defined a difficulty of breathing that has peculiar symptoms, and depends upon a peculiar proximate cause.* This definition, it must be confessed, leaves us at a loss to determine what the precise meaning of the author may be, or what is the true nature of the disease. Nor are we disposed to admit that of Bree, who defines asthma an excessive contraction of the muscles of respiration usually called difficulty of breathing, without acute fever, excited by irritation in some one of the viscera which these muscles serve.† One would suppose from this explanation, that asthma was merely a disease of the muscles of respiration, when in reality it has its seat in the bronchia and lungs: pathological anatomy shews the complete futility of such definitions.

Asthma is a difficulty of breathing, recurring in paroxysms, depending upon a state of superexcitation of the bronchial mucous membrane, and consequent spasms of the muscular fibres of the bronchial ramifications, attended with wheezing and a sense of constriction of the chest, frequently with cough, and sometimes with expectoration, especially towards the termination of the paroxysm.

† A Practical Treatise on disordered respiration, &c.

26* v.1
The disease has been divided into a great number of species and varieties, most of which are merely founded upon some accidental symptom or complication.—Sauvages,* enumerates no less than eighteen species, and almost as many more have been added by different writers. Such distinctions have no foundation in the pathology of the disease, and are altogether inadmissible. Lænnec has divided it into two species: 1. Asthma with puerile respiration; and 2. Spasmodic asthma. These divisions are deduced from the phenomena furnished by the stethoscope; but as the essential difference is so trifling as to lead to no variation in practice, we shall disregard them, and describe the disease as it usually presents itself.

Sec. 2. Symptoms.—An attack of asthma is generally preceded by a train of premonitory symptoms, most of which are indicative of a derangement of the digestive and respiratory apparatus. These are, irregular appetite, flatulence, acid eructations, drowsiness, pain, and heaviness of the head, uneasiness of the knees, especially towards evening, and in many cases, a general uncomfortable sensation as night advances. There is, also, a shortness of breath, especially in crowded assemblies, or in a heavy atmosphere; oppression about the præcordia, and a constant irascibility of temper, or peevishness of disposition. These anomalous symptoms frequently precede for some time an open attack of the disease, and sometimes the individual suffers from them for weeks or months before the paroxysm declares itself.

But whether these evidences of functional disturbance precede or not, the attack is generally sudden, and comes on in most cases at night, the patient, perhaps after a short slumber, is suddenly awoke by a sense of tightness or stricture across the chest, great difficulty of breathing, attended with more or less wheezing, and a desire of fresh air, so urgent that he is compelled to assume the erect posture, or to quit his bed and fly to the open window or door, or even to rush into the open air, to relieve himself of the urgent sense of suffocation. The whole of the muscles of respiration are thrown into powerful action to increase the capacity of the chest—the diaphragm labors; the chest heaves; the arms are thrown in different directions, and the patient seizes firmly upon the nearest object, to give a firmer point of support to the muscles which move the thorax. The inspirations and expirations are long, laborious and hissing; the

* Nosologia Methodica, 4to. tom. i. p. 661.
voice is enfeebled, and speaking is difficult; the eyes are protuberant and staring; the veins of the head and neck tumid, and the whole countenance livid, tumeied, distorted and indicative of the greatest distress. There is seldom much pain experienced in the chest, but the patient sometimes complains of a sense of heat in that region. When cough exists at the commencement of the paroxysm, it is generally short, dry and convulsive, but towards the close, becomes fuller, and is attended with more or less expectoration. The heart is much embarrassed, and the pulse, though sometimes not materially disturbed, is generally frequent, small, irregular, or intermitting. The skin is seldom febrile, but generally cold and covered with a clammy sweat, and the extremities are in most cases, of an icy coldness. The thirst is inconsiderable. The bowels are generally flatulent, and the patient occasionally makes efforts to vomit, or even ejects the contents of the stomach with more or less viscid mucus. This disturbance of the stomach is doubtless excited through its sympathy with the lungs by the intermediate of the pneumogastric nerves.* There is also a frequent propensity to urinate, attended with a copious discharge of pale urine, which, however, towards the subsidence of the paroxysm becomes high colored, and deposits a copious sediment.

These distressing symptoms generally continue throughout the remainder of the night, but begin to abate towards morning. The stricture across the chest, the hurried and laborious breathing, and the wheezing during inspiration and expiration become less distressing; the respiration more free; the pulse fuller and more regular; the skin is covered with a free warm perspiration; the cough is attended with mucous expectoration, and as morning approaches, the patient generally falls into a refreshing slumber.

His relief often continues throughout all the next day, but he is by no means exempt from all his distressing symptoms. His breathing is still somewhat oppressed, and the slightest exertion, or the effort of speaking, brings on a distressing cough, attended with wheezing. The horizontal posture is irksome, and if the weather is warm, the patient expresses an urgent desire for fresh air. His bowels are either constipated, or too loose; he is troubled with constant eructations and flatus, and in some cases with slight colicky pains.

In the course of the ensuing night, a second paroxysm usual-

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ly declares itself, which presents the same train of phenomena, and runs the same course as the preceding, with the exception, perhaps, that the symptoms present an aspect of slight mitigation. Towards morning, a remission again occurs, more perfect than the first, and the day is spent in a state of greater quietude and comfort. The patient is thus subjected to a succession of paroxysms, generally taking place at night, which continue to recur until the disease seems to wear itself out; the attack each night being milder than that which preceded it, and the remissions every day more complete, until finally a free and well concerted expectoration takes place; the breathing becomes free; the digestive functions are restored; the constitutional vigor returns, and, to use the language of Bree, "good humor and sunshine again enliven the mind."

The character of the expectoration differs considerably at different periods of the disease. At first scanty and ropy, it afterwards becomes frothy, and as the disease subsides, it acquires a thick consistence, like the expectoration in the last stage of catarrh. It is sometimes of a dark color, or is streaked with black, and occasionally with a small quantity of blood. In some cases, indeed, a considerable quantity of fluid blood is discharged.* The black color of the expectoration is by no means of frequent occurrence, and when observed, it probably proceeds from melanotic degeneration of the lungs.

To these symptoms should be added those which are revealed by percussion and auscultation. This is the more important, because they not only enable us to distinguish asthma from the various diseases with which it is liable to be confounded, but at the same time afford conclusive evidence relative to its true pathology. If we resort to percussion during the paroxysm, the resonance of the chest will sometimes be found but little diminished, or altered in character; but more frequently it is rendered dull throughout nearly the whole extent of the thorax. This modification may be produced by an engorgement or congestion of the vessels of the lungs. But in some cases it cannot proceed from that cause, inasmuch as it is sometimes observed under circumstances when no such congestion can exist. It has been remarked by Laennec, that if percussion be practised during a full and forcible inspiration, the same dull sound will in many cases be produced—consequently, under these circumstances, no congestion can be developed, and the dull sound must be attributed to a spasmodic contraction of the bronchial tubes, or some other

*Haase ueber die Chronischen Krankheiten, band ii. p. 66, Leipzic, 1820.
cause. It has been remarked by Williams, that this spastic contraction occasions the lungs to be collapsed within the thoracic cavity, and the parieties of the chest, falling in with them, lose that sonorous elasticity produced by the fullness of the aerial contents.*

The stethoscope reveals phenomena equally palpable and peculiar. In some cases, a sibilous rale can be distinguished in some portions of the chest, while throughout by far the most extensive part the respiratory murmur is entirely extinct. These phenomena vary, however, almost every instant. At one moment no respiratory murmur can be perceived at any point, and perhaps at the next, the respiration will become puerile over the whole thorax. The same phenomena are observed in an individual after taking much exercise, as for example after running, or rapidly ascending a flight of stairs. It has, moreover, been remarked by Lænnec,† that a very forcible inspiration very often gives rise to no distinct respiratory murmur, whereas under the influence of a moderate one, the respiration may be perceived in the same individual over the whole thorax. This he conceives to be owing to the air not being able to penetrate the air cells of the lungs when a violent effort is made; hence he supposes that in asthma, where the same condition is observed, the spasmodic constriction of the bronchial tubes tends to exclude the air from the pulmonary cells, and thus gives rise to an extinction of the respiratory murmur. Accordingly, it is found, that where a momentary relaxation of the spasm takes place, the sound of the respiration becomes apparent, or even puerile, and this condition may be sometimes brought about by requiring the individual to read aloud, or recite as long as he can, without inspiring, when frequently an unconscious respiratory effort will take the spasm by surprise, as it were, and the air will penetrate every portion of the lungs.

In some instances, however, the asthma may be confined to a single lung, or even to a part of it; and then the phenomena in question can only be observed in the portion of the organ affected with the disease, while throughout all the rest of the chest, the respiration will be healthy, or but little changed. This circumstance should render us particular in conducting our exploration, and in directing our attention alternately to every point of the chest.

* Williams' Exposition of the Physical Signs of the Diseases of the Lungs and Pleura, p. 90, Philad. 1830.
After the patient has passed through an attack of the disease, he frequently experiences a respite of several weeks or even months; in some cases, indeed, even one or more years may elapse, before he suffers a renewal of the paroxysm. In general the interval is more limited, and he is, on exposure to some exciting cause, affected with an attack even more violent than that which preceded. There is, however, nothing determinate either in the period of recurrence, or the duration of the paroxysm. Every thing relating to these points seems to be governed by the degree of predisposition, the constitution and habits of the individual, and his exposure to, or avoidance of, the exciting causes. It should nevertheless be observed, that once established, the disease is liable to be renewed by the operation of the slightest causes. A close atmosphere, exposure to cold, and the inhalation of certain odors, have often excited a paroxysm. It appears also to be somewhat under the influence of idiosyncrasy; as there are certain substances, which, with some individuals, never fail to prove an exciting cause. Several instances have been reported in which the smell of ipecacuanha has produced this effect; and numerous examples might be adduced in which other substances have proved alike injurious.

Asthma sometimes continues throughout a period of many years, yet patients laboring under it often live to a good old age. In most cases, however, its consequences are much more formidable. If it does not destroy life itself, it generally gives rise to the development of organic lesions, which in the end prove destructive. These are effusion of water into the lungs or the cellular tissue, pulmonary inflammation, abscesses of the lungs, tuberculous, encephaloid, or melanotic degeneration of the same organs, hæmoptisis, diseases of the heart, aneurism of the large arteries, apoplexy, and in some instances, extensive disease of the liver and the other abdominal organs. We consequently find in many cases, that after the disease has continued for some time under an unmitigated form, or where a number of violent paroxysms succeed each other very rapidly, serious disturbance takes place in many of the functions—the patient becomes weak and emaciated; his whole constitutional energies are broken down, and he either falls a victim to phthisis and hectic fever, or to some other disease equally formidable.

Sec. 3. Causes of Asthma.—The causes of asthma are exceedingly various, but they may be all referred either to the properties inherent in the organization of the individual, or to
those agents which, in acting upon it, modify its vital operations.

a. Constitutional causes.—It has been supposed that a predisposition to asthma is often handed down from the parent to the offspring, and it is certainly true, that where one of the heads of a family have been affected with it, one or more of the descendants often have it entailed upon them. We have seen several examples of this character, and they are of such frequent occurrence as to leave no doubt of the truth of the principle. But it is rather a similarity of organization and temperament that creates this liability, than an actual transmission of the predisposition; for it necessarily follows, that similarity of organization will constitute a liability to similar diseases, and consequently, when the organization and temperament of the child are analogous to that of the parent, if the one was afflicted with asthma, the other will have a greater proneness to that disease than another individual differently endowed.

There are several conditions of the organization which create a liability to asthma. These are a preternatural smallness of the chest, a narrowness of the glottis, and of the trachea and bronchial ramifications; an inordinate irritability and extreme vascularity of the bronchial mucous membrane; a very susceptible nervous system, rendering it apt to be inordinately excited by common causes, and thus disposing the muscles to spasm, and a preponderant development of the pulmonary circulation. To these may be added various other sources of predisposition. It was long since remarked by Aëtæus, that females are more liable to the disease than males; but all modern pathologists concur in representing the liability to be greatest on the part of males; and Joseph Frank* has even estimated the ratio as one to six. Children, though not exempt, suffer less frequently than adults, and those of middle age are oftener affected than individuals in advanced life; for although the latter suffer greatly from difficulty of respiration simulating asthma, in a large proportion of cases it is dependent upon some organic disease. Individuals, endowed with a strong predominance of the nervous temperament,—who are of an excitable or irascible disposition, and who are easily moved by every passion and emotion, possess a remarkable proneness to the disease. It is, therefore, of frequent occurrence in such persons as are affected with a hysterical or hypochondriacal disposition. Bree has, moreover, indi-

Geddings on Asthma.

cated the bilious temperament as a source of predisposition. Such especially as have a full chest, manifesting a preponderance of pulmonary development, together with a large head, short neck, and withal, a fretful and peevish disposition, and an organization prone to be brought under the influence of the passions, or inordinately excited by the operation of physical and moral causes, frequently become the victims of asthma. Indeed, this condition of the organism not only creates a liability to the disease, but we often find the passions and emotions of the mind among its most fruitful exciting causes. We have repeatedly known a vivid mental emotion excite a strong paroxysm, in an individual possessing the proper degree of predisposition, where previously no manifest indications of functional disturbance existed. Whatever tends to create any considerable disturbance of the nervous system, often awakens a preternatural susceptibility of the organism, which creates a liability to asthma. Hence those who are addicted to the practice of onanism, or excessive venereal indulgence, often suffer from the disease.

Other diseases not unfrequently create a disposition to asthma. Hence it has been often observed supervening upon organic diseases of the lungs and heart, effusions of water in the chest, or a gouty, rheumatic, or scrofulous diathesis; and repelled cutaneous eruptions, by exciting a centripetal tendency of the circulating fluids, and developing a state of superexcitement of the internal tegumentary surfaces, often prove instrumental in evolving the disease.

b. Physical causes.—The physical or hygienic causes of asthma may act directly upon the lungs, or propagate their influence to those organs through the medium of the general system. Various irritating substances, as the fumes of different metals, the smoke of tobacco or other articles in a state of combustion, certain substances in a gaseous form, &c. very often excite the disease. Hence it has been remarked, that brewers, bakers, distillers, smiths, miners,* those who work in chemical laboratories, stone cutters, millers, refiners, needle pointers,—in short all artisans, whose occupations expose them to the operation of agents which tend to irritate the bronchia, are remarkably liable to suffer from asthma. The odor of ipecacuanha seems to have a remarkable tendency to excite the disease. A case is recorded in the Philosophical Transactions, of the wife of

an Apothecary, who suffered a paroxysm of the disease whenever ipecacuanha was powdered in the shop, although previous to her marriage, she had never felt any symptoms of it. It has been observed, moreover, that those who are employed in pulverizing this article, are often affected with asthma.* The exhalations from heaps of apples, newly made hay, &c., the smoke of burning sealing wax, the fumes of chlorine and carbonic acid gas, and the odor of the tuberose, the heliotrope, &c. sometimes produce the same effect.

The sensible qualities of the atmosphere likewise exercise much influence in this way. Some suffer from cold and moisture, while others are more affected by a serene and dry atmosphere. Some cannot live in the dense and smoky air of a city, while others suffer most in the pure elastic country atmosphere. Some seek the mountain top, but many can only find ease and comfort in an atmosphere loaded with mists, and impregnated with malaria. Sudden vicissitudes of temperature frequently become the exciting cause of the disease; hence persons who are predisposed suffer more from it in spring and autumn, than at other seasons, when the weather is more steady. Wet feet, and the action of cold upon the surface of the body, by throwing the tide of the circulation upon the lungs; a sudden check of the perspiration; the suppression of an accustomed evacuation; the retrocession of an eruption from the skin; in short, whatever tends to break up the natural balance in the distribution of the circulating fluids, and the equilibrium of the excitement of the system, will be apt, where the predisposition already exists, to give rise to a paroxysm.

It seems, moreover, to be somewhat influenced by latitude. In those regions which are exposed to sudden and considerable variations of temperature, it is more prevalent than where the climate is less mutable. Hence it is more frequently observed in temperate, than in very warm or very cold latitudes; and it is represented by Joseph Frank, as being much more common in Poland than in Italy. Even the distance of a few miles sometimes creates considerable difference in this respect. Floyer, who was himself a victim of asthma, informs us that he could not visit the place of his nativity, in Staffordshire, without experiencing an attack of the disease. Asthmatics are also influenced by the electric states of the atmosphere, and suffer most when that principle is redundant, and least when it is deficient. It sometimes supervenes upon other diseases. Hildanus and Andral have reported cases, in which it was excited by the retro-


27 v.1
cession of a disease of the skin. Hoffman saw it produced by repelled gout, and Casimer Medicus, Torti, and Alibert, have related instances in which it followed intermittent fever. It would seem, moreover, from some facts which have been detailed, that the disease is more or less under the influence of certain periodical revolutions. Its proneness to come on at night is one of its most steady characteristics, and from the constancy with which it observes this law, there seems to be something either in the darkness of the nocturnal period, or some hidden quality peculiar to it, which exercises considerable influence over the disease. An interesting case, corroborative of this view, has been detailed by Lænec. Count H. aged sixty-two, who, from early childhood had been subject to attacks of asthma, always had one of great severity developed, if by chance any one closed the door of his chamber while he was asleep, or extinguished the light. The paroxysm was constantly relieved by throwing open the windows, and restoring the light.* On one occasion we were ourselves attacked with an overwhelming sense of suffocation from riding in a stage coach at night, with the windows closed, the latter being of wood instead of glass, and consequently excluding all light. That this did not proceed from the confined air is evident from the fact, that the curtains were sufficiently loose to allow adequate ventilation. A similar effect is sometimes produced in asthmatics, when they are placed in the midst of a vast plain, where there is no particular object upon which the eye can rest. This is so much the case, that some of them cannot go to sea, and the author just quoted, has reported the case of an individual, who, on setting out on horseback to visit a friend a few leagues distant, was attacked with so violent a sense of suffocation, as to compel him to return. But so soon as he had taken his direction towards home, his distress subsided, and he again attempted to resume his journey, which was productive of a renewal of his difficulty of respiration, and this was a second time as promptly relieved by resuming his course back to town.

Lunar influence, which has been presumed by many to exercise so much control over other diseases, has been supposed to have some agency in exciting asthma. Fransery has reported, in the Memoirs of the Royal Academy of Madrid, the case of an asthmatic, who was so much affected in this manner, that during twenty-one years she suffered a recurrence of the disease at the period of every new and full moon. This, however, is but a

* De l'Ascultation Mediate, tome ii. p. 91.
Geddings on Asthma.

Solitary example, and many others would be necessary to enable us to arrive at any satisfactory conclusions. Wainwright, however, observed an individual, who experienced an attack of the disease at every menstrual period, for seven years; and by Heberden, the case of a person is reported, who had a renewal of the asthmatic paroxysm, at an interval of seven years, for six successive periods.

It has been remarked, that asthma is frequently produced by those causes which excite and maintain a disturbance of the digestive function. Hence the disease has been supposed by some pathologists to be sympathetic, in many cases, of gastro-intestinal irritation. That these causes may be sufficient to provoke an attack in persons already predisposed to the disease, we can have no difficulty in believing. It will admit of a question, however, if asthma can ever be developed in this manner alone, and independently of any preceding bronchial affection. Be this as it may, it is certain, that the digestive apparatus often participates much in the disease, and there are but few cases of any violence in which indications of gastro-intestinal irritation are not more or less manifest.

Sec. 4. Pathological Anatomy of Asthma.—While the investigations of the pathological anatomists have done much to explain the characters of the multifarious lesions originating those forms of dyspnœa which were formerly confounded with asthma, they have not contributed much to reveal the state of the organism concerned in that modification of morbid action in which the disease consists. A reference to the records of the science, from the time of Willis, up to that of Baillie, Corvisart, and Lænec, will furnish us with the history of a great number of dissections of individuals affected with asthma, yet it will be found, that in a large proportion of the cases reported, the diseases were of an entirely different character, consisting of serious organic lesions of the heart, aorta, lungs, pleura, pericardium, and even other organs remotely situated. Lieutaud* alone has collected upwards of seventy cases, in which dissection revealed some affection of this character, and in which, consequently, the asthmatic symptoms were merely symptomatic of organic disease. This may be regarded as the general result of the investigations of most pathologists. Hence, many have denied that such a condition as asthma, unconnected with changes of structure in some important organ, ever exists. Ros-

* Historia Anat. Med. lib. ii. 4to. 1767.
tan has advanced some strong arguments in relation to this point, and with a very few exceptions, it is borne out by universal observation.—It must be confessed, however, that in some cases, where individuals have presented all the symptoms of the asthmatic paroxysm strongly developed, the most careful examinations have not been able to detect the slightest lesion of structure. Willis has reported the case of an asthmatic, who was unable to breathe in the recumbent posture, in whom the only lesion observed after death was an effusion of water from the membranes of the brain. Georget states, that he has frequently observed more or less alteration of the color, and softening of the texture, of the brain of those who have died of asthma. A similar remark has been made by De Lens, and in one instance, Jolly found the nervous centre diseased at the origin of the pneumogastric nerve.* In a serofuloulous subject reported by Andral, who died of difficult respiration, the only lesions were a few mililiary tubercles in the lungs, and a cancerous condition of the phrenic nerves, which was confounded with a mass of indurated glands, occupying the anterior mediastinum. Beelard also observed a case of asthma, in which there was merely a small tumor developed upon the course of one of these nerves; and another instance is reported by Ferrus, in which an ossific degeneration of considerable extent occupied the centre of the pulmonary plexus, which implicated a portion of one of its nerves.† These are rare examples, and however far they may go to elucidate the pathology of the disease, they do not justify the conclusion, that such lesions are generally one of its concomitants. A much more common condition is more or less inflammation of the bronchial mucous membrane, attended with striated, punctuated, or diffused redness; congestion of the pulmonary tissue, and catarrhal symptoms more or less manifest.—In one case, in which a violent dyspnoea succeeded the recession of the eruption of measles, Andral found the bronchia presenting all the characters of bronchitis; and the same author reports a second case, in which asthma supervened upon the drying up of an old ulcer:—the lining membrane of the bronchia presented several small points of redness.‡—Parry reports a similar case brought on by gout. This is probably the most common condition of the air passages in asthma. It has been remarked by Lænnee, that he had witnessed but very few examples of spas-

‡ Andral Clinique Medical, tome ii.
modic asthma, uncomplicated with catarrhal symptoms.* There are other cases, in which the influence of the local irritation extends still further, giving rise to extensive pulmonary congestion, and emphysema of the tissue of the lungs. This latter condition, together with an oedematous condition of the lungs, has been mentioned by Bonetus, Morgagni, Ruysch, Stoll, Ridley, Watson,* Baillie and others. It may give rise to all the symptoms of asthma, but in most instances it should probably be rather regarded as a consequence of the violent embarrassment of the respiratory act. In a case observed by Yalsalva, in addition to the emphysematous condition of the lungs, they presented several spots of a dark color, and there was also an effusion of lymph within the cranium.

Notwithstanding the disease is in a large majority of instances, attended with some appreciable organic lesion, there are some in which the most careful and diligent necroscopical investigations have not been able to reveal any manifest organic affection. The truth of this assertion is borne out by the testimony of the most skillful and experienced pathological anatomists. The fact has been particularly adverted to by Lænnec and Ferrus, and is corroborated by the numerous researches of Corvisart, Lerminier, Recamier, Leroux, Andral, Jolly, Bouillaud, Guersent, Cruvielhier, and many others whose names might be cited.

But in the absence of any change or modification of tissue, bearing a relation in point of intensity with the urgency of the symptoms, we are not authorised in inferring that asthma is entirely independent of such a condition. Reiterated experience has shown, that in a great number of cases, marks of even intense inflammation often disappear so completely after death, that no vestiges of it can be discovered. It should, moreover, be remarked, that notwithstanding the improvements of pathological anatomy, our means of investigation are yet too limited and imperfect to enable us to detect the more minute shades of the molecular modifications of the tissues which are developed by disease. In the structure of the nerves especially, changes are doubtless often induced, of sufficient importance to impress very serious modifications upon the functional acts of the animal economy, without the eye of the most acute anatomist being able to trace them or appreciate their characters. This is certainly true of a large proportion of the diseases usually denomi-

* De l'Auscultation Mediate. tome ii. p. 86.
nated nervous, and some of the facts detailed above, as well as the corroborative testimony afforded by analogy, renders it probable, that such a modification has an important participation in the development of the phenomena presented by asthma. More circumspection in conducting our researches, and an improvement of our resources in prosecuting them, will probably, ere long, enable us to demonstrate, that many of those diseases which are now regarded as purely functional, are in reality attended with important alterations in the textures of the organs which they involve, and reveal to us, that the number of maladies which are not of this character is exceedingly limited.

Sec. 5. Pathology of Asthma.—What is the nature of asthma? What the tissues most affected by it? and what are the modifications experienced by them under its influence, or in its development? The first of these questions has elicited a multiplicity of hypotheses and fruitless conjectures, but is yet far from being satisfactorily settled. The second and third, though somewhat elucidated by necroscopic investigations, may be regarded as still requiring additional illustrations, before we can be authorised in arriving at any positive and satisfactory conclusions. But although much doubt and obscurity still exist in relation to some features of the disease, much, it must be confessed, has been elicited by a more accurate knowledge of the structure of the organs concerned, and a better acquaintance with the properties and functions of their different parts, to assist us in forming more correct opinions of the nature of the malady than those which formerly existed.

From the time of Galen to that of Willis and Hoffman, nearly all pathologists concurred in referring asthma to a superabundant collection of phlegm or pituita in the air cells of the lungs, which they conceived precluded the entrance of the air, and thus occasioned the wheezing and sense of suffocation. We have seen that Willis divided the disease into three varieties; one dependent upon changes of structure in the lungs; one upon a purely spasmodic condition of the nerves and muscles, and finally, a third arising from the conjoint operation of both of these causes. He supposed however, that there was also a collection of mucus or serum, within the bronchial tubes, which by irritating the nerves, was instrumental in the development of the spasm. Hence he observes, “Serosa, colluvies, nervos pulmonum diastolens perficientes, subiens, spiritibus ibidem scatentibus aceret; quibus postea ob plenitudinem vel irritationem confertim, et aliquandiu elisis pulmones velet rigidi et inflati
detinentur, et neque ἐκανομεῖ neque ἐκανομεῖ munia exequi possint."

This explanation, however well it may comport with many of the phenomena of the disease, does not furnish a satisfactory explanation of the manner in which they are produced. Pathological investigations have shown, that in many cases no oedematous condition of the lungs, or serous or mucous engorgement within the bronchial tubes exist, yet the symptoms are as urgent as where they are present.

Hoffman, who made spasm perform so important a roll in the production of disease, referred asthma to a spasmodic constriction of the bronchial tubes, preventing the free ingress and egress of the air to and from the lungs.

Lieutaud defines asthma a habitual difficulty of respiration more or less violent, either continual or periodical, ordinarily independent of any other disease, and unaccompanied with fever.† Making deduction for the various forms of dyspnœa which simulate its characters, and which are dependent upon some organic disease, he refers it entirely to a perverted action of the nerves, without defining the manner in which they are affected, or what influence they exercise.

Floyer and Cullen advocated the theory of spasm of the bronchial tubes, but supposed that the most common cause of this spasm, is a preternatural congestion of the vessels of the respiratory apparatus. It is remarked by the latter, that the proximate cause of asthma is a preternatural, and in some measure, a spasmodic contraction of the muscular fibres of the bronchia, which not only prevents the dilatation of the bronchia necessary to a free and full inspiration, but gives also a rigidity which prevents a free and full expiration. This preternatural constriction, like many other convulsive and spasmodic affections, is readily excited by a turgescence of the blood, or other cause of any unusual fullness and distension of the vessels of the lungs.‡

Darwin supposed that the periodical character of asthma, might be owing to an effusion of serum into the lungs during sleep, thus irritating the nerves and exciting a paroxysm, which may be finally relieved by a copious perspiration.§

Such were the doctrines which generally prevailed until they were assailed by Bree, who being himself a sufferer from the

* De morb. convuls. cap. xii. p. 93.
† Precis de la Med. Pratique, tome i. p. 389, 1769.
§ Zoonomia, vol. i.
disease, devoted much attention to its investigation. He main-
tains, that asthma is a disease anologous to dropsy, and depends
upon an effusion of serum into the air cells of the lungs. He
subjoins, however, that it is obviously distinct from hydrothorax,
in which the water is collected in the pleura, or cellular texture
of the lungs. In each situation it will occasion dyspnœa, which
though subject to exacerbations, will not put on the form of
periodic asthma.

These are the principal hypotheses which have been advanced
relative to the pathology of the disease. But if they be all sub-
mited to a rigid examination, none of them will be found to com-
port with fact. Against the doctrine of Galen and most of the an-
cients, we have the argument advanced by Floyer; that the abun-
dant mucous pituita, which they supposed occasioned the disease,
by choking up the bronchial tubes, does not exist in the early
part of the paroxysm, and that in proportion as a free mucous se-
cretion becomes established, the more urgent symptoms give
way. The theory of spasm advocated by Willis, Hoffman, Cul-
len, and others, is not without its defects; yet with all these, is
certainly more entitled to our confidence than that of Bree, who
has attempted to refute it. That spasm has a large share in the
production of many of the phenomena of the disease is incontes-
table; but what produces the spasm? This is a question which
it is important to solve, and as neither Hoffman, Cullen, or any
of the writers referred to, have given a solution of the difficulty,
they have mistaken a secondary for the proximate condition, and
have thus laid the foundation for an erroneous practice, which
being merely directed to the spasm, is not calculated to subdue
the condition by which it is produced.

The conclusions of Bree are neither justified by the pheno-
mena of the disease during the life of the patient, or the appear-
ances found after death. That a serous fluid is sometimes ef-
 fused into the cellular tissue of the lungs cannot be denied, and
that such a condition may also occasion a difficulty of breathing
is equally true; but that this fluid is poured into the air cells of
the lungs, and thus produces dropsy, is far from being proved by
any of the arguments he has adduced. But admitting his con-
clusion, what does it prove? Merely that some of the tissues
of the bronchia or lungs are affected with irritation or inflamma-
tion, and that this gives rise to an effusion of serum into the air
cells. The effusion of fluid, is therefore only a secondary con-
dition—a consequence of preceding irritation, and this irritation
is itself the primary source of the disease.
Prus, an ingenious modern French pathologist, has advanced an opinion relative to the proximate cause of asthma, which differs in most essential particulars from any hypothesis, which had been advocated by any of his predecessors. To render his views intelligible, it will be necessary to premise, that he endows the living solids with three fundamental vital properties;—irritability, contractility, and expansibility, and to these he refers all the living phenomena, as well in health as disease.

If, says he, we suppose for an instant, an augmentation of the sensibility and expansibility of the lungs sometime sustained, the necessary result will be a permanent dilatation with difficulty of contraction. The tendency of the lungs will be to remain in the condition which they assume during the act of inspiration,—to maintain a kind of immobility; but this immobility, which in some other organs can be prolonged without danger, is here incompatible with the maintenance of life. The incessant desire for respiration tends constantly to disturb this state of repose, and efforts at inspiration are consequently made, but they are necessarily short and wheezing, since the pulmonary apparatus is already in a forced state of distension. Each motive effort, therefore, creates an increase of its distension, is attended with additional pain, which suspends, interrupts, or renders it irregular, and excites a convulsive cough, the effect of which is to expel the air by its commotion, and thus to bring about a kind of irregular expiration. Here then we have all the phenomena of convulsive asthma. Superadded to the irritation, we have short and difficult respiration, painful expiration, and convulsive cough. The voice is interrupted by the intermission of the respiration; the trifling extent of the latter only allows a small quantity of air to enter the lungs, which is insufficient to decarbonize the blood; hence the patient becomes affected with a temporary asphyxia for want of air, and his countenance assumes that suffusion and lividity which is observed in asthmatic patients.*

This hypothesis is certainly ingenious, and when we reflect that the lungs do in reality possess an active power of expansibility, independent of any mechanical influence arising from the ingress of the air, or the movements of the thorax, it seems at first sight, to present many points deserving our confidence. But notwithstanding its plausibility, it is liable to serious objections, and one of no trifling weight is, that it is incompatible with the structure of the bronchial tubes.

* Prus de l'Irritation et de la Phlegmasie, p. 73. Paris, 1825.
The fibrous structure of the bronchia was long since described by Helvetius, Morgagni, and several of the older anatomists. Their observations, however, were confined for the most part, to the stratum of transverse fibres which close up the posterior portion of the trachea and the primitive bronchia, by passing from the extremity of one cartilaginous ring to the other; and to the white longitudinal fibres which traverse nearly the whole extent of the bronchial ramifications. The latter, especially, have been described by the individuals just referred to; but Morgagni confesses his ignorance of their office.*

But notwithstanding the existence of these fibres was known to many anatomists even at an early period, the order and extent of their distribution were not accurately determined previously to the investigations of Reisseisen, Säemmering, and Crucielhier. The following description of the longitudinal fibres is given by Reisseisen. They are manifest even in the larynx, and may be seen through the mucous membrane, presenting a shining white appearance. Towards the posterior portion of the tube, they are collected into bundles or lacerti, running in a longitudinal direction. In front they adhere with the perichondrium, but behind, where the cartilages are defective, they are situated between the mucous membrane and the transverse muscular fibres which fill up the space between the extremities of the cartilaginous rings. At the points at which the bronchial tubes divide, they elevate the mucous membrane so as to throw it into longitudinal folds. They pass into all the bronchial ramifications, and can be traced far beyond the level of the termination of the cartilaginous structures. In man, they become so much attenuated in the more minute bronchial tubes, and are so transparent, as to render it difficult to trace them; but in the larger animals, in which they are more strongly developed, and of a whiter color, they can be traced, with the assistance of the microscope, even to the minute blind terminations of the tubes.†

These fibres are highly elastic, and are analogous in their structure and properties to the fibrous coat of the arteries. They impart to the lungs a disposition to recoil upon themselves like a spring, when they have been distended. Hence it is found, after death, that the elastic force of these fibres acting upon the air, mucus, or any other materials which may be contained in the bronchial ramifications, forces them out so as to

allow the lungs to collapse. As these results take place after death, when the principle of irritability must be extinct, it is probable that they are merely owing to elasticity, and are entirely independent of any vital property.

The same distinguished anatomist has described a second order of fibres occupying the air passages, but presenting an arrangement and properties very different from those just represented. As far as the cartilaginous arrangement of the tubes continues, these fibres form a transverse stratum, filling up the spaces between the cartilages, and attached by their extremities to the perichondrium by which the latter are covered. Thus, in the trachea and the primitive bronchiae, they complete the posterior portion of the tube, and are fortified anteriorly by the elastic fibres and the mucous membrane. Below this point, they fill up the interstices between the irregular cartilaginous fragments which contribute to form the secondary and tertiary divisions of the bronchiae, but do not terminate at the points at which the cartilages disappear. Beyond this situation, they are disposed in a concentric order, circumscribing the whole extent of the tubes, and although very minute, if the lung of an old subject be selected, they may be followed, with the assistance of a glass, as far as the tube can be laid open. It may, indeed, be safely inferred, that as the minute bronchial ramifications must possess the same contractility and irritability which exist in the larger trunks, these fibres continue even to the air cells. This is proved not only by analogy, but also by the results of direct experiments. The active irritability and contractility of the minute tubes was long since demonstrated by Varnier,† by injecting into them fluids of various characters, by inflating them with irritating gases, and by submitting them externally to the influence of mechanical irritants. The existence of these properties in the bronchial tubes has been fully confirmed by the results of modern researches, and especially by those of Nasse, of Halle, who has published some very conclusive experiments on bronchial contraction. He found that by passing a galvanic current through the pneumo-gastric nerves, the fibres of the air passages, and consequently the whole lungs, are thrown into a state of contraction; and that by dividing these nerves, the power of bronchial, or pulmonary contraction is destroyed, and dyspncea induced.‡

* Reisseisen op. cit. p. 9.
As illustrative of the vital acts performed by the lungs, and of the manner in which they are associated in the general scheme of the economy, it may be well to advert to the arrangement of the nerves within their substance. These are derived from two sources; the ganglionic and pneumo-gastric; and though very distinct at their origin, they become very intimately associated before they penetrate the substance of the organs. Their connections are particularly intimate in the pulmonary plexus situated at the root of the lungs, and from this point, numerous filaments pass into those organs, coursing along the bronchia and blood vessels, some of them terminating in the mucous and muscular membrane of the air passages, others in the tunics of the blood vessels, while some even reach the superficies of the lungs, and supply the vascular net work which is placed immediately beneath the pleura. But notwithstanding the ganglionic and pneumo-gastric nerves are thus distributed, as it were, to all the structures which form the pulmonary apparatus, and are consequently placed in a state of very intimate relationship with each other, it has been affirmed by Scarpa and Reisseisen, that the filaments of the respective nerves do not communicate within the substance of the lungs. It should, nevertheless, be stated, that from the point at which they communicate exteriorly, numerous branches pass into the substance of the organs, which are composed of filaments from both systems. This is observed, as well in the branches of the pneumogastric, which come off high up in the neck, as in those which escape from the pulmonary plexus. Thus, the superior and inferior laryngeal nerves carry with them filaments of the ganglionic system, and the same is true of those which are given off by the pulmonary, cardiac, and other plexuses formed at the expense of these two systems of nerves. Hence, though to a certain extent appropriated to different functions, their acts are inseparably associated;—there is a reciprocal relationship between them, and they act in concert.

It is difficult to define with precision the respective offices of these two nerves. Experiments made on living animals have, however, furnished some data from which important conclusions may be deduced.—We have already adverted to the investigations of Nasse, from which it appears, that when the pneumogastric nerves were divided, the contractility of the bronchia, and consequently of the lungs, was annihilated, and dyspnœa was induced. The same results have been obtained by Dupuytren, Wilson Philip, Begin, Legallois, Dupuy, Magendie, Bre-
schet and Edwards, and many others. Some of these experiments, especially those of Wilson Philip, shew, that when the nerve is divided high up, the muscles of the glottis are materially influenced, and the voice is altered. All these circumstances seem to demonstrate, that one office of the pneumogastric nerves is to preside over the contraction of the bronchial muscular fibres, hence, when they are divided, paralysis of these fibres is induced, and the tubes being unable to act upon the air contained within them, it cannot be expelled, and a kind of dyspnœa is developed merely from an annihilation of this power of contractility. This difficulty of respiration has been by some, confounded with asthma, but we shall have occasion to shew, in the course of our observations, that it is of an entirely different character; the one being associated with paralysis of the fibres, and the other with a preternatural spasmodic constriction of them. Besides this office of the pneumogastric nerves, it is highly probable that they constitute the medium, or the instruments of the organic instincts, by which the wants of the parts to which they are distributed are conveyed to the centre of volition, and there rouse up those acts which are demanded by the exigencies of the system.

The ganglionic nerves seem to be especially appropriated to nutrition, secretion, and depuration, or those changes accomplished in the blood by respiration. They are everywhere distributed to the secreting surfaces and to the glands. They accompany the arteries, which are the instruments of nutrition, into the inmost recesses of the tissues, and it has been demonstrated by experiments, that when the pneumogastric nerves are divided, secretion still goes on, and the ordinary changes which take place in the blood during respiration are accomplished. Thus, it is stated by Brodie, that when animals were decapitated, and respiration was sustained by artificial means,—the blood continued to undergo the ordinary changes of color in the lungs, but no animal heat was generated. Breschet and Edwards, moreover, ascertained by their experiments, that the division of the pneumogastric nerves paralysed the coats of the stomach, but that if the contraction of the fibres of that organ were excited by the application of irritants to the extremities of the divided nerves, digestion was still carried on.

Thus, by these two systems of nerves, the respiratory, circulatory, and digestive apparatuses are intimately associated. Hence we observe the closeness of their mutual dependencies, and the facility with which they influence each other.
This knowledge of the structure and properties of the bronchial tubes, and of the connexions and associations of the nerves which are distributed upon them, enables us to offer a satisfactory explanation of the pathology of asthma. The first link in the chain of causation is the development and long persistence of more or less irritation, or in other words, of a state of preternatural excitability or sensibility of the mucous membrane of the air passages, or of the nerves which are distributed upon them. But to enable this irritation to give rise to the characters of asthma, it is necessary that the structures concerned should be placed in a favorable condition for the development of this tendency.—This is precisely what is accomplished by the predisposition, which we have seen may be either hereditary or acquired.—Of the precise condition of this predisposition we are ignorant, and can only infer from the phenomena which it presents. It would seem to be a peculiar irritability or mobility of the moving solids, especially of the muscular fibres of the bronchia or the nerves which control them, which disposes them to assume inordinate actions under the operation of even moderate sources of excitation.

This much granted, it follows that whenever an exalted irritation is developed in the bronchial mucous membrane, its influence is immediately extended to the muscular fibres of the bronchial ramifications, which, from their preternatural susceptibility, are thus thrown into inordinate spasmodic contractions, and give rise to all the phenomena of the disease which have been delineated above. This, however, is not all. It is an established law of the animal economy, that the effect of every irritation transcending that degree in which the healthy acts of the tissues consist, is to invite to, or precipitate upon them, an increased determination of blood. So soon, therefore, as the air passages become affected with this exaltation of their vital acts, the natural consequence is an augmented determination of the circulating fluids to the bronchial mucous membrane, and in some cases, to the pulmonary capillaries generally, thus giving rise to extensive sanguineous congestions of these parts, which not only tend to exasperate the proper asthmatic symptoms, but also to embarrass the action of the heart.

But to make good our hypothesis, it will be necessary to prove two points: 1. That there is in asthma actually an exaltation of the susceptibility of the bronchial mucous membrane: and 2. That a spasmodic contraction of the ramifications of the air passages is developed.
Geddings on Asthma.

In proof of both these propositions, we appeal to the nature of the remote and exciting causes, to the characters of the structures upon which these causes exercise their influence, and to the evidence afforded by autopsic examinations.

We have seen that the organic predisposition, which in one sense of the word is sometimes hereditary, consists in a preternatural organic sensitiveness or irritability of the air passages, which disposes them to be inordinately affected by common impressions. We have seen, moreover, that all the causes of asthma are those of bronchial and pulmonary irritation in general. The cough, the hoarseness, the suspended expectoration at the commencement of the paroxysm, and its increase towards the close—all prove the existence of a high degree of bronchial irritation. The same thing is proved by the assertion of Lannee and other pathologists already adverted to—that asthma seldom occurs uncomplicated with catarrhal symptoms, and by the tendency of the disease to excite pneumonic inflammation, serous effusions into the lungs or within the splanchic cavities, tubercles, phthisis pulmonalis, and other organic diseases.

The disposition and properties of the structures themselves are favorable to this conclusion. The mucous membrane is exquisitely organized, is rich in capillary vessels, deriving their origin from a double source—abundantly supplied with nerves, also coming from two sources—the one regulating its nutritive, secretory, and perhaps its depuratory acts; the other endowing it with organic instincts, and conveying these instincts to the cerebro-spinal centre, controlling the contractility of its muscular fibres, and associating its different acts with the muscles of volition, which act in obedience to its wants, and when called upon, exert themselves to provide for its exigencies. It has been very correctly remarked by Broussais, that the mucous membrane which lines the respiratory and digestive organs is endowed with a kind of internal sense, which transmits to the cerebro-spinal centre the multifarious impressions made on it by the various agents to which it is exposed. It is every where supplied with ganglionic nerves, which may be regarded as the instrument of this internal sense; but as these merely regulate the organic acts, were there not others superadded or associated with them, the operations concerned in the functions of vegetative or nutritive life would merely exist in a state of isolation from all the other functions, and could exercise no influence upon them. This is what exists in the more imperfect organized beings, which are placed in the midst of the nutritive element.
destined for their subsistence, and consequently are impelled by
no necessities to seek or prepare their nourishment, are endow-
ed with no instincts to avoid sources of danger, or to seek out
means of gratification. Those animals, however, which are
more complex in their organization, are far differently situated.
Their wants are multifarious, and their instincts are proportion-
ately multiplied. Their existence is not merely one of growth;
but the necessities of their nature compels them to seek out the
materials by which this growth is sustained. Hence their or-
ganic instincts awaken volitions, and these volitions are sup-
plied with instruments which act in obedience to them, and
provide for the wants of the organism. To accomplish the
circle of these acts, it is necessary, that the different parts
which are concerned in it should be intimately associated with
each other—that they should possess such an intimate correla-
tionship as to act in perpetual concert, and maintain a perfect har-
mony in their reciprocal operations. We consequently find,
that the ganglionic nerves, which are distributed to all the mu-
cous surfaces, are associated throughout their whole extent with
those which emanate from the spinal marrow, on the one hand,
and on the other, with the pneumogastric, which is very inti-
ately associated with that portion of the ganglionic nerves
which supplies the respiratory, circulatory, and digestive appa-
ratus. By means of these connections, the several organs con-
cerned in the functions of nutritive life are intimately associated
with the general system of sensation and voluntary motion, so
that there may be a perfect correspondence between the acts of
the latter, or the volitions, and the demands of the former,
which call upon them through the medium of their organic in-
stincts. The connections between the ganglionic and pneumo-
gastric nerves serve at the same time, to establish a channel, by
which the instincts of the organs can be readily conveyed to
the centre of intelligence, where they excite volitions in ac-
cordance with their wants, and which take a direction calcula-
ted to satisfy them. The pneumogastric nerve, therefore, may
be regarded as an instrument destined to preside over the or-
ganic instincts, or in other words, to perceive the impressions
awakened by their wants, and to convey these impressions to
the brain, which, aided by the instruments placed under its con-
trol, is alone competent to provide for them.

The organs in which these instincts are most strongly mani-
Fested are, the stomach, the apparatus of respiration, and the
heart. These too are the parts to which the pneumogastric
nerves seem to be especially appropriated. While, therefore, they are here inseparably connected with the ganglionic nerves, upon the lining membrane, and within the substance of these organs, they are placed in a situation to perceive all their wants—to feel the instincts of hunger, of thirst, of respiration, circulation, &c. and to convey them to the nervous centre. The same nerves preside over the instincts which have for their object the safety of the organs themselves. Thus, to illustrate this principle, suppose some offending substance has been introduced into the stomach or the air passages. The ganglionic nerves, although they may suffer from the irritating cause, have no power to throw it off. But as the pneumogastric nerve controls the muscular structure of these organs, as soon as the instincts are aroused, it excites their contractions, and thus contributes to expel them, from the one, by vomiting, and from the other, by exciting a forcible expiration or the act of coughing. But as the concurrence of several "instruments is necessary in the accomplishment of these ends, the pneumogastric nerve conveys its instincts to the brain, when the appropriate volitions are aroused, and these in their turn call to its aid the abdominal muscles, or those which move the chest, according to circumstances, which acting in harmonious concert, excite the acts adverted to, and thus release the organs from the influence of the offending cause.

The truth of these principles is well illustrated by what takes place in asthma. The lining membrane of the bronchia is submitted to an inordinate degree of irritation, in which not only the ganglionic, but also the pneumogastric nerves participate. The latter consequently, in virtue of their relations with the muscular arrangement of the air tubes, excites them to spasmodic contractions, which tend to diminish their calibre, and thus prevent the free ingress and egress of the air as in healthy respiration. To overcome the obstacles thus developed, the instincts of the bronchia are conveyed to the brain by the pneumogastric nerves, the muscles of the chest are called into violent action, and in their concurrent efforts to remove the source of the difficulty, the chest heaves, the course of the blood through the lungs is arrested, the heart labors, and all the symptoms of asthma are developed. Nor is the spasm confined to the bronchial ramifications. The muscular fibres which occupy the space between the extremities of the cartilaginous rings of the primitive tubes, as well as those of trachea, and even the muscles of the glottis participate, so that the whole tube is narrow-
rowed; the glottis is firmly closed; and while the air from without is prevented from entering the lungs, that which is within the lungs is pent up, and submitted to the violent agitation impressed upon it by the inordinate spasmodic contractions of the bronchi. In some instances the constriction of the glottis is so unyielding, that the violent pressure exercised upon the air within the lungs, by the constriction of the bronchial ramifications, is sufficient to occasion a rupture of the mucous membrane, and thus give rise to an extensive emphysema of the pulmonary tissue. Numerous cases of this kind have been reported, but there is one related by Begin, which more than any other illustrates the principle in question, inasmuch as all the phenomena were so carefully analysed as to demonstrate satisfactorily the cause of the accident which ensued. A soldier was seized suddenly with a violent paroxysm of asthma, which obstinately resisted all the means employed. During each expiratory effort, a part of the air could be distinctly heard with the stethoscope, descending from the trachea towards the parenchyma of the lungs, giving rise to a peculiar wheezing sound, while the other part escaped through the glottis. It seemed as though the elastic fluid, violently compressed at every point, made an effort to escape through every portion of the walls by which it was imprisoned, until it finally forced a passage in the parenchyma of the organ itself, into which it became more extensively infiltrated during every effort of the lungs. On examination after death, which occurred on the fourth day, the two lobes of the lungs were found puffed up with air, which had infiltrated itself throughout the whole of their cellular tissue.*

In further corroboration of the existence of spasm of the bronchial tubes, we appeal both to the symptoms of the disease, as proclaimed through the ordinary channels, and to the phenomena revealed by the stethoscope. In effect, do not the difficulty of breathing, the long and violent inspiration, the short and imperfect expiration, the wheezing, the embarrassment of the heart, and the heaving of the chest, all concur to prove that there is some obstacle to the free entrance and exit of the air? Does not the blackness or lividity of the face and lips, shew that the blood has not been submitted to the influence of the external air, and that the natural relations between them are cut off for the time, by the inability of the latter to enter the air cells of the lungs.

The alteration or weakness of the voice also proves the narrowing of the bronchial tubes, or the closure of the glottis. But the most conclusive evidence is that afforded by the stethoscope. When the lungs are in a healthy condition, a kind of murmur, occasioned by the passage of the air, can be perceived with the aid of that instrument, throughout the whole extent of the thorax. The same thing is observable, with some modifications, in disease, except where there is obstructions of the bronchial tubes, by hepatization of the pulmonary tissue, collections of mucus, the development of tubercles, &c. There are, nevertheless, many circumstances which tend to render this murmur indistinct, or imperceptible in different parts of the lungs. But all of these produce that effect by diminishing the calibre, or completely closing the bronchial ramifications. Thus, if we apply the stethoscope to the chest of an individual immediately after violent exercise, while the circulation and respiration are still in a tumult, we shall find the respiratory murmur completely extinct, the bronchial muscular fibres being in a state of violent spasmodic contraction which closes the tubes, the spasm being excited by the irritating influence of the general congestion of the mucous membrane and the pulmonary tissues. In proportion as the hurry subsides, and the respiration becomes natural, the murmur is again rendered perceivable, because the irritation having subsided, the spasm gives way, the bronchial ramifications and the air cells regain their natural dimensions, and are thus enabled to transmit the air freely to and from the lungs. The same phenomena are observed in a paroxysm of asthma. The respiratory murmur cannot be perceived by the stethoscope applied to certain parts of the chest, and in others it is so enfeebled as to be rendered almost extinct. This result, as has been already asserted, can only be occasioned by a closure of the bronchial tubes or the air cells. Now, as this closure can only arise from a hepatization of the lungs,—from a clogging up of their calibres by blood, mucus, &c., or from spasm of their muscular fibres, if it can be proved that in asthma, neither of the first causes concur to produce the effect, (and it has been demonstrated that they do not), we must refer it to spasm, and this spasm to irritation.

 Adopting these views of the pathology of asthma, we can readily comprehend how it may be excited by impressions made upon the lungs, as well as by those which are made upon organs remotely situated. The whole of the organs subservient to nutritive or vegetative life, being associated by their nerves in the man-
ner already explained, and consequently in their functions, impressions made upon one, extend their influence with great facility to the others. This is manifested in all the diseases to which they are liable, and is well illustrated by the phenomena of asthma. This disease, though located in the bronchia, may be produced by the operation of causes which impinge either upon the part which constitutes the seat of the diseased process, or upon others with which it is linked by an intimate chain of sympathies. All that is necessary to ensure its development, under the influence of its exciting causes, is the pre-existence of a state of predisposition. Where this is already formed, an irritation of the stomach and intestines, of the liver, Kidneys, spleen, heart, or brain, may excite a paroxysm as readily as though the superexcitation were developed primarily in the bronchial ramifications or the tissues of the lungs. Hence it is an ordinary occurrence to see an accession of the disease excited by the ingestion of crude articles of diet, by any thing in short which exercises an irritating influence upon the stomach and intestines; by a calculus in the Kidneys; by any cause which disturbs the action of the heart, and in fine, by superexcitement of the brain, whether from mental emotions, or the operation of causes purely physical. The exciting cause, whatever may be its character, first excites preternaturally one of these organs, but the mucous membrane of the bronchia, together with adjacent muscular fibres, or the nerves by which they are controlled, being in a state of predisposition, the irritation, instead of permanently localizing itself upon the part in which it is evolved, radiates with great promptitude to that which the predisposition has rendered preternaturally susceptible to its influence, and concentrating itself there, gives rise to all the phenomena of the disease under consideration.

In the same manner, any intense irritation of the heart, rendering its actions irregular, or occasioning an embarrassment to the passage of the blood through the lungs, may give rise to an attack of asthma. This principle is exemplified in all the transient disturbances to which that organ is liable, as in those temporary palpitations which have been denominated nervous; in the disease denominated angina pectoris; in a momentary intermission of the diastole or systole of the organ, &c. There is a perfect correspondence between the hollow organs and the voluntary muscles which are obedient to their instincts,—between the heart and lungs, and the muscles which are concerned in inspiration; between the stomach and intestines, and those of the abdomen; and between the bladder and the muscles which assist
in expelling the urine. Hence, we find that even a momentary disturbance of the action of the heart, tending as it does to interrupt the regular transmission of the blood through its cavities, occasions simultaneously a difficulty of respiration; for the blood being impeded in its course through the organ destined for its transmission, is confined within the vessels of the pulmonary apparatus. This disturbs the functions of the latter organs; their instincts are aroused; their wants are communicated to the centre of volition, and the action of the muscles of inspiration is called into requisition to effect a full expansion of the chest, and in thus facilitating the transmission of the blood, to overcome the embarrass ment of the suffering organs. Should the heart be inordinately irritable, or have its susceptibilities so much exalted as to throw it into irregular action even under the ordinary stimulating influence of the blood, or still more under the operation of a sudden mental emotion, its orifices or cavities may take on a violent spasmodic action, and by thus interrupting the passage of the blood through the lungs, may excite in those organs all the phenomena of asthma. The disturbance of respiration will, therefore, continue until the spasm of the heart abates, and will subside so soon as the exciting cause is removed. That many cases of the disease under consideration have their origin in a disturbance of the central organ of the circulation is not merely rendered probable by these physiologicopathological considerations, but is absolutely demonstrated by the frequent co-existence of asthma with organic lesions of the heart, as explained above. Universal experience has shewn, that the left cavities of the heart are by far more liable to disease than the right; and this is precisely the portion of it which, when thus affected, will be apt to embarrass the play of the lungs.

This connection between asthma and the functional disturbances of the heart, has not been sufficiently attended to. It should never be overlooked in investigating the phenomena of a case, inasmuch as a careful analysis of its consequences will often lead to the development of important indications, and in some instances, will constitute the only clue to a proper comprehension of the characters of the malady.*

From the tenor of the preceding reflections, the conclusion may be deduced, that asthma, whatever its characters or complications, is essentially dependent upon a state of superexciement of the mucous membrane of the air passages, giving rise to

a spasmodic constriction of the bronchial and tracheal muscular fibres, and of the muscles of the glottis. To these conditions succeed the laborious action of the chest, the irregularity in the distribution of the blood, and the general impairment of the respiratory function.

Sec. 6. Treatment of Asthma.—The pathological views which have been detailed, will naturally suggest the principles upon which the treatment should be conducted. In the latter, there are two leading objects to be fulfilled: first, the relief of the paroxysm; and second, the prevention of its recurrence.

The first object of the physician, when called to an individual affected with asthma, should be to place him in a proper position, and to remove all causes that can have the effect of embarrassing his respiration. All tight articles of dress, or such as tend to impede the circulation, or confine the action of the chest, should be taken off; he should be placed in bed lightly covered, in nearly an erect posture, and the windows and doors should be thrown open so as to admit of free ventilation. These steps, though merely preliminary are highly important, and a strict attention to them will contribute greatly to the comfort of the patient. The next object of consideration will be the administration of such means as may be best suited to arrest the paroxysm, or shorten its duration. We shall enumerate these under separate heads.

a. Blood-letting.—This remedy has long enjoyed the confidence of the profession in the treatment of asthma, and was even recommended by the ancients. Hippocrates in one place recommends, where the difficulty of breathing is urgent, to bleed with a bold hand, even though the patient may be dropsical. But there is no certainty that his recommendation had particular reference to the disease we are now considering. Be this as it may, Celsus speaks more explicitly, and states that blood should be drawn, unless some condition should be present to contraindicate the opening of a vein. Baglivi is even more warm in his commendations of the remedy. He says, that when the paroxysm is so urgent as to threaten the life of the patient, no remedy rescues him from danger so speedily as blood-letting, promptly instituted; and if the necessities of the case require it, the operation should be repeated even from both arms simultaneously. Sydenham treated the disease by the abstraction of ten ounces of blood, followed by the administration of a common purging portion, and if the symptoms did not yield, he repeated the bleeding. Lieutaud also recommends venesection, but re-
stricts it to those cases in which the sense of suffocation is urgent, or where the disease has followed a suppression of the menstrual or hemorrhoidal discharge. Cullen, in like manner, merely gives the remedy a conditional recommendation. He thinks that venesection may be a proper remedy in the first attacks of asthma, when the system is yet plethoric, but after this condition has given way, under the continuance of the disease, it becomes less and less necessary. Bree, though not in favor of blood-letting, admits that blood may possibly be drawn with advantage before the pulmonary vessels have relieved themselves by their exhaling orifices. But when effusion has taken place, a certain debility is indicated, and a loss of contractile power in the vessels, which prudence will rather submit to during the fit, and remedy during the intermission. He moreover subjoins, that he had repeatedly directed it in the first species of asthma, but had never had reason to think that the paroxysm was shortened an hour by the loss of blood, but had often been convinced that expectoration was delayed, and that more dyspnœa remained in the intermission, than was common after other paroxysms.

Burserius is more unqualified in his commendations of blood-letting. Where the paroxysm is urgent, and comes on suddenly, if the individual should not be enfeebled by age, or by previous disease, whatever the cause of the asthma may be, blood should be drawn from the arm; and the necessity for this practice will be still more imperative where there is a general plethoric state of the system, attended with redness and turgescence of the face, or when the disease has proceeded from the suppression of some accustomed evacuation. Nor is the abstraction of blood under such circumstances contra-indicated by a small, obscure, and contracted pulse, or the coldness of the extremities.*

Professor Potter, of the University of Maryland, insists strenuously upon the importance of the free abstraction of blood during the paroxysm of asthma. In those who have not experienced repeated attacks of the disease, and especially in the young and athletic, he remarks, that blood-letting is not only the most effectual remedy, but in many it is radical. The pulses, continues he, cannot safely direct us in common cases; for such is the embarrassed state of the lungs, that the heart is brought

into concern, and it may be necessary to bleed, although the pulses may be feeble.*

But while most authors agree in relation to the employment of the lancet for the relief of pulmonary congestions, many of them interdict it under other circumstances, and regard it as decidedly prejudicial. This view of the subject has been taken by a majority of modern writers, and especially Lænnec, Jolly, Ferrus, Forbes, Eberle, Copland, &c. The former has very judiciously remarked, that bleeding should not be neglected, whenever the lividity of the face, the active constitutional energies of the patient, and the violent action of the heart, announce the existence of sanguineous congestion of the lungs. Care should be taken, however, not to abuse the remedy, which in this, as in other diseases, merely produces a temporary mitigation of the symptoms.—Blood-letting, he subjoins, is rarely useful in asthma after the first few days, and if too often repeated, it is apt, by depressing too much the constitutional energies of the patient, to endanger his safety, or to prolong the attack.†

Reviewing the whole grounds, it appears to us, that there are two objects to be had in view in the employment of blood-letting in asthma: one to subdue the violent congestions of the lungs, and to liberate the embarrassment of the actions of the heart; the other to overcome the bronchial irritation which we have represented as one of the leading features of the pathology of the disease. At the onset of the paroxysm, the great difficulty of breathing, the overwhelming congestions of the lungs, the livid suffusion of the face, the turgescence of the vessels of the head and neck, and the difficulty with which the blood seems to traverse the heart and lungs, all seem to call loudly for venesection; and where the subject is young and vigorous, and has not been enfeebled by age or previous disease, it should be freely resorted to, and repeated if necessary. Under such circumstances, it will relieve the more urgent symptoms, and tend to curtail the duration of the paroxysm. With the second view, however, general bleeding will seldom be indicated, unless when the inflammation extends deeper than the mucous membrane, and involves the tissues of the lungs themselves. Under these circumstances, if there be a febrile condition of the system, it will sometimes be necessary to draw blood from the arm. But in a large majority of instances, it will be better to confide in local bleeding by cups and leeches, for the removal of these

† Lænnec De l'Auscultation Médiate, tome 2, p. 98.
subacute affections of the pulmonary organs. They are not only beneficial by abstracting blood, but likewise by creating revulsion from the diseased organs. They should be applied to the chest and between the shoulders, and when the asthma has succeeded the suppression of the menstrual or hæmorrhoidal discharge, the best effects will follow the application of leeches to the vulva or anus, or even to the inner part of the thighs. The abstraction of blood will seldom be called for, except under the circumstances detailed. Employed under other conditions of the system, it often becomes highly prejudicial, and occasionally tends to sap those energies of the constitution which are instrumental in supporting the patient under the disease. It should be remembered, that there is constantly a species of antagonism existing between the different tissues and organs of the body, and that when one becomes preternaturally excited, it tends to concentrate upon itself the powers of the others. Thus in asthma, the nervous and muscular systems being in this state of exalted susceptibility, they are constantly drawing upon the resources of the other systems. Consequently, if the action of the heart and arteries should be too much enfeebled by the abstraction of blood, they will be no longer enabled to resist this tendency of the other systems to transfer to themselves the excitement growing out of their acts, and a kind of revulsion will be produced, by which all the symptoms of the disease will be exacerbated. This law is well exemplified in a large proportion of those diseases usually denominated nervous and spasmodic, and likewise exercises an important influence in asthma.

b. Emetics.—Far more unanimity of sentiment exists in relation to the employment of emetics in this disease. They have been strongly recommended by Cælius Aurelianus, Etmuller, Baglivi and Floyer; and Cullen states, that when a fit was expected in the course of the night, a vomit given in the evening frequently served to prevent it. Bree also speaks highly of emetics, but thinks they are more successful when administered in small repeated doses, than when given so as to excite violent vomiting. They act here, as in catarrh, by diminishing the impetus of the circulation, exciting revulsion to the stomach and the surface of the body, facilitating the passage of the blood through the heart and lungs, promoting expectoration, and allaying spasm. Where it is determined to employ them, full vomiting should be excited at once, and with the view of eradicating the disease, by transferring irritation from the bronchia to some other point, they may be repeated from time to time, as
recommended by Floyer. After the more urgent symptoms of the paroxysm have been subdued, it will generally be preferable to administer the medicine in frequent small doses, to keep up an impression on the stomach without exciting much vomiting. This practice, strongly recommended by Akenside, has been successfully followed by many modern physicians. He preferred the ipecacuanha, which he administered in the paroxysm so as to excite full vomiting, and in the intervals in nauseating doses. He nevertheless states, that the medicine administered in either of these ways was equally successful. Tartar emetic, squills, or some of the other emetic articles may be employed for the same purpose. But the antimonial emetics generally produce too much debility, and act too much on the bowels, in the advanced stage of the disease. We should except perhaps the kermes mineral, which, where repeated small doses are necessary, may be employed in portions of from three to five grains with advantage. Floyer considered the vinegar of squills as a specific in asthma. It is certainly valuable as an expectorant and diuretic, but for the purpose of exciting an emetic operation, ipecacuanha should be preferred.

c. *Lobelia Inflata.*—This article may be enumerated in the order of remedies useful during a paroxysm of asthma, next to emetics; for although much of its efficacy seems to be owing to a narcotic or antispasmodic property, it is unquestionably owing, in some cases at least, to its emetic influence. Since the lobelia inflata was first proposed as a remedy for this disease, it has been much employed by practitioners, and if we may judge from their reports, with very different results. While many have merely found it beneficial in mitigating and shortening the duration of the paroxysm, others speak of it in terms of enthusiasm, and seem to regard it almost in the light of a specific. It is declared by Eberle to be the most valuable remedy we possess for the management of this affection. He remarks, that he had seen the most violent paroxysm of spasmotic asthma subdued by it in less than thirty minutes. In one very violent and inveterate case of the disease, in which he prescribed it, the patient’s respiration was in one hour, entirely free from difficulty or oppression.* We have ourselves employed the saturated tincture in three or four instances, with some advantage, but never with the striking results obtained by Cutler and Eberle. It may be regarded as a useful adjuvant, and may be advantage-

* Eberle’s Practice of Medicine, vol 2, p. 219. Philad. 1831.
Geddings on Asthma.

ously prescribed with other means to shorten the paroxysm, but should never be relied upon alone.

d. Cathartics.—Active purging in asthma is altogether inadmissible, but the bowels should be always kept in a soluble condition, as recommended by Celsus. In some cases, however, where there are evidences of chronic irritation of the gastrointestinal mucous membrane, attended with dyspeptic symptoms, perversion of the secretions, and a sluggishness of the peristaltic motion of the bowels, it will be proper to combine the laxative with what are usually denominated alterative remedies. For this purpose, small doses of blue pill, or calomel, combined with the alkaline extract of jalap or rhubarb and chalk, &c. will generally effect all we desire in that way. This practice, however, will be more appropriate in the intermission than during the paroxysm. In the latter stage, the bowels should be freely opened by a large emollient injection, or by some brisk cathartic of an unirritating character. Should the bowels be difficult to move, a moderately stimulating cathartic enema may be administered, as well for the purpose of unloading them of their contents, as creating revulsion from the lungs to the large intestines. Some writers have also recommended copious injections of iced water to be thrown into the rectum, and many have employed assafoetida and other antispasmodics in this way.

e. Diaphoretics.—The condition of the skin should not be neglected during a paroxysm of asthma. The symptoms are generally too urgent to allow time for the tardy operation of the ordinary diaphoretic remedies; yet a perspirable condition of the surface may be encouraged by the warm bath, warm fomentations and poultices, and occasional frictions. Loelner even recommends the application of cold apothegms to the thorax, but we should be disposed to doubt the propriety of employing them. Haase particularly inculcates the propriety of covering the chest with warm fomentations, or of rubbing the whole thorax with some liniment or solution, containing a large proportion of opium.—Olive oil with extract of hyosciamus has been employed for the same purpose.

f. Revulsives.—These are amongst the most important means for the relief of a paroxysm of asthma. Where blood-letting is necessary, it should generally take precedence; but after a sufficient quantity of blood has been detracted, the next object should be to divert irritation, and with it, the tide of the circulation, to some remote point. This may be attempted by warm stimulating pediluviae, sinapisms, frictions with rubefacient substances,
blisters, &c. Cups will also constitute an important means of accomplishing this end. They should be applied to the thorax, between the shoulders, and to the nape of the neck. While the extremities are enveloped in sinapisms, the thorax may be covered with a hot cataplasm made of some mucilaginous or farinaceous article, with a proportion of mustard flower stirred in with the other ingredients. Portal and Burserius also recommend, with the same intention, a thick cataplasm of onions.—Some inveterate attacks of asthma have been entirely relieved by the application of a few moxas. Few individuals, however, would be willing to submit to so harsh a procedure. It is probably by creating a powerful revulsive impression, that fear and other intense mental emotions sometimes cut short a paroxysm of asthma. Parry has reported an interesting case illustrative of the agency of this cause. Sir James G.—, aged fifty, from seven years of age had frequent and violent fits of spasmodic asthma, accompanied with fever, usually lasting for a week, and followed by a very slight expectoration of transparent greyish mucus, occasionally streaked with blood. These attacks sometimes amounted to pneumonic inflammation, and then required for their relief very copious bleeding. In the beginning of one attack which occurred some years ago, he was taking some ether, which accidentally fell on his arms, and caught fire from the flame of the candle. This produced a sudden and great degree of mental agitation which immediately removed the paroxysm of asthma.*

A. Narcotics.—Of all the remedies employed for the relief of the paroxysm of asthma, narcotics hold decidedly the most important rank. They afford the most speedy relief of the patient’s sufferings, and when employed during the interval, they often contribute to prevent a recurrence, or even to effect a cure.

Opium naturally suggests itself as a remedy well suited for the fulfilment of the objects to be accomplished by the administration of narcotics, and although there is strong testimony in its favor, much has also been said against it. To relieve the violent spasm, Poterius and Willis recommended the free administration of laudanum.† But many others, while they admit the necessity for its employment where the symptoms are urgent, advise great precaution in its use. Bree, who made trial of opium in his own case, states that its influence was prejudicial.

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* Parry’s Posthumous works, vol 2, p. 35, Lond. 1825.
† Forbes’ Cyclopedia of Practical Medicine, p. 198.
But from the large doses of the medicine which he employed, there can be no difficulty in accounting for the distressing symptoms he experienced. Four grains of solid opium, at one dose, would be apt, even in a healthy individual, to excite the apoplectic stupor, and the sense of anxiety from which he suffered, and could scarcely fail to prove injurious to an individual affected with asthma. We are ready to confess, that opium does sometimes tend to aggravate the disease, but at the same time we are warranted, as well by our own experience, as that of others, in recommending it as a useful remedy, after the proper evacuations have been effected. It should never be given in the large doses in which it was employed by Bree, and to add to its beneficial influence, it may be combined with some of the antispasmodics, as musk, ether, assafoetida, &c. These stimulating articles will, however, be improper, except in protracted cases, in which there is but little inflammation, and where the spasmodic condition is predominant.

Those who have objected to opium have recommended some of the other narcoties. Of those which have been employed, we may mention belladona, hyoscyamus, strammonium, conium, cicuta, aconitum, colchicum, phelandrium, duleamara, prunus lanro-erassus, prussic acid, veratum album, &c. Many of these articles are too tardy in their operation to meet the urgent characters of the case, and although exceedingly useful in the intervals of the paroxysm, they can seldom be brought to exercise their influence with sufficient promptitude to make much impression upon the latter. They may nevertheless be often employed with signal advantage, if combined with anti-spasmodics; as camphor, musk, assafoetida, ammonia, ether, &c. It has been remarked by Copland, that even opium does not produce the same good effects, when given alone, as when combined with an anti-spasmodic. Hence, he observes, that he had found the camphorated tincture of opium much more beneficial, than any of the preparations of morphia. This has also been the result of our own experience. We have, moreover, derived much advantage from Dover's powder, combined with camphor.

Hahnemann is warm in his commendations of nux vomica, and Hein speaks favorably of St. Ignatius's bean. It should be remarked, however, in reference to the former remedy, that the individual who recommends it is the founder of the homöopathic doctrine, according to the principles of which, diseases are cured by those remedies which make an impression on the liv-
ing solids analogous to that in which the morbid action consists. Supposing, therefore, that asthma depends upon a spasmodic constriction of the muscular fibres of the bronchia, and knowing the tendency of nux vomica to excite spasms in the muscles, he was induced to administer it for the cure of this disease, and as he represents with much success. Professor Jackson, of Boston, reports favorably of the spiders' web as a remedy for the asthmatic paroxysm. He administered it in doses of five or six grains every three or four hours, and remarks, that in one individual, twenty grains produced sound sleep, which he had not experienced for six years before.

No remedy perhaps ever enjoyed more reputation than stramonium when it was first introduced into notice. It was indeed for a long time, regarded as a divine specific, under the influence of which asthma was shorn of all its terrors. Notwithstanding the high expectations raised in its favor have never been realized, it has been found a valuable remedy in an extensive range of cases. It is employed in the way of smoke, like tobacco, either alone, combined with the latter article, or with some aromatic, as anise, cascarilla, &c. The dried root, previously bruised, is smoked from a pipe, and the individual endeavors to inhale the smoke into the lungs. It generally excites a sense of warmth throughout the chest, a feeling of fullness or tightness about the head, sometimes sickness, and generally brings on a free expectoration. We have known several individuals who have derived much relief from smoking this article, as well as tobacco, and although it has not effected a cure in any case, it has generally palliated the more urgent symptoms. In some cases, however, stramonium has been said to have produced injurious, or even alarming effects. Caution should therefore be observed in its administration. The testimony in favor of smoking is of the strongest character. A veteran asthmatic, in & communication to Dr. Forbes, expresses himself as follows in relation to this subject. "Smoking, I am able to say, after fifteen years' practice and suffering as much as mortal can suffer and not die, is the best remedy for asthma, if it can be relieved by expectoration. I have been in the hands of all the doctors of ———, for fifteen years, and still I say smoke."

h. Anti-spasmodics.—The pathology of asthma inculcated by a majority of writers on the subject, naturally led to the gene-

* Cyclopædia of Practical Med. p. 199.
ral employment of anti-spasmodics, as the most effectual means of overcoming the disease. They have, consequently, next to narcotics, been perhaps more frequently prescribed than any other class of remedies. But as most of them are actively stimulant, great discrimination is requisite in the application of them to particular cases. They should not be administered in the more acute or catarrhal forms of the disease, and should be entirely restricted to those of long standing, in which there is but little excitement and local determination. The most popular articles of this class are assafoetida, musk, castor, camphor, valerian, oil of amber, ammonia, and the symlocarpus foetida.—Assafoetida has been highly extolled by Miller, in the treatment of a form of asthma which he has described as peculiar to children. It has also been recommended by Wichman, Lentin, Hufeland, Schaeffer, Wolff, and many others, either by the mouth, or in form of oyster. We have derived most advantage from it administered in form of watery emulsion, combined with camphorated tincture of opium, and Hoffman's anodyne liquor. Musk has been favorably spoken of by Henke and some other authors. He administered it in doses of from three to six grains, in combination with the liq. ammon. anisi and extract. opii. Camphor, ether, and many other articles of a similar character are also frequently very useful, when applied to the chronic forms of the disease, where the vital energies are depressed. Under the same circumstances, Loebel has recommended phosphorus dissolved in ether. To this class of remedies may also be referred strong hot coffee, originally recommended by Floyer, and Pringle, and since found useful by Bree and many other individuals. It should be taken as strong as it can be prepared, and without cream or sugar. It has been represented by Hoven, that he had obtained the most fortunate results by the administration of opium, in combination with strong coffee.

i. Inhalations of watery and other vapors, gaseous substances, &c.—The earliest physicians prescribed the inhalation of warm aqueous and other vapors for the relief of dyspnea, and they are often employed at the present day. Some cases, of catarrhal asthma are much benefitted by this practice. Warm vapors impregnated with narcotic, anodyne, or anti-spasmodic substances are most generally employed. The character of the disease would seem to indicate the use of such inhalations as

contain anodyne or narcotic properties; but the propriety of administering, in this manner, those which are highly irritating and stimulating, is exceedingly questionable; such, for example, as the fumes of bals. tolu, or peru, those of tar, camphor, ether, iodine, vinegar, chlorine gas, &c. Many of these have been highly extolled, and we will not deny that they may not in some instances tend to give relief, by overcoming the spasm, but the good effects probably in all instances, are obtained at the expense of an exaltation of the irritation of the bronchial mucous membrane, calculated rather to create a predisposition to subsequent attacks, than to remove the disease.

Inhalation of the vapors from narcotic substances, however, from their faculty of quieting irritation, often render essential service. They may be administered by boiling the plants or extracts in water, and inhaling the vapor through an appropriate instrument. The articles usually employed for this purpose are hyoscyamus, stramonium, belladona, conium, &c. But the want of volatility renders it difficult to convey a sufficient quantity to the lungs to produce much effect. For this reason, they have been generally digested in alcohol or ether, over a gentle heat, with the view of conveying their particles with the ethereal vapor to the diseased organs. The stimulating influence of these menstrua will, however, always constitute a strong objection to this method of administration. Scudamore recommends inhalation of the vapors of iodine and the tincture of conium. It is stated by Copland, that in two cases, one of spasmodic, the other of catarrhal or humoral asthma, in which he employed the sulphuret of iodine in this manner, one experienced no benefit, and the other only temporary relief.*

In the days of pneumatic medicine, great anticipations were excited in favor of the inhalation of various gases in the cure of disease, and Beddoes and others strongly recommended the use of oxygen for the relief of the asthmatic paroxysm. It does not seem, however, to have accomplished any very decisive results, and notwithstanding the warm commendations bestowed upon it by those who advised its employment, it is now entirely neglected. Some respirable gas endowed with anodyne or soothing properties is yet a desideratum amongst our means of combatting disease, but may we not hope, that the daily achievements of chemical science, may ere long bestow upon us some heavenly boon of this kind, not only competent to assuage the miseries of

Geddings on Asthma.

the asthmatic paroxysm, but to check the ruthless career of phthisis, and many other pulmonary diseases?

With the view of overcoming the spasm of the muscles of the glottis, and of the finer bronchial ramifications, which prevents the air from reaching the air cells of the lungs, Chiarenti, an Italian physician, who himself suffered much from asthma, proposes to force atmospheric air into the lungs, by means of a pair of common bellows. He introduced the pipe of the instrument into his mouth, and closing the nostrils, forced the air into his lungs, which afforded instantaneous relief. He continued the operation for some time, and still with the same good effects. He then extended the trial to others under similar circumstances, and with similar benefit. After a mass of experience with this remedy, he comes to the conclusion, that the artificial insufflation of atmospheric air is not only a means of putting a speedy termination to the paroxysm of asthma, but of radically curing the disease, if organic alterations have not taken place in the lungs.*

k. Electricity and Galvanism. The success attending the use of electricity in other diseases, long since induced practitioners to give it a trial in this. It has been particularly recommended by Sigaud Lafonde; but the results obtained by its employment have not been such as to inspire much confidence in its efficacy. Galvanism has been found more useful. It has been highly commended by Wilson Philip as a remedy for asthma. He was led to its employment by reflecting upon the analogy between the effects produced by a division of the eighth pair of nerves and the symptoms of this disease. He remarks, that the time during which the galvanism was applied, before the patient said that his breathing was relieved, varied from five minutes to a quarter of an hour. To produce this effect, he employed from eight to sixteen four inch plates of zinc and copper, the fluid employed being one part of muriatic acid, and twenty of water. Some required sixteen plates, and a few could not bear more than eight. The apparatus was arranged in the following manner. Two thin plates of metal about two or three inches in diameter, dipped in water, were applied, one to the nape of the neck, the other to the pit of the stomach, or rather lower. The wires from the different ends of the trough were brought in contact with these plates, and as great a galvanic power was main-

tained, as the patient could bear without complaint. He remarks, that in habitual asthma, the remedy was almost uniformly productive of relief, and in those who had labored under asthmatic breathing for ten or twenty years, it was quite as efficacious as in more recent cases. He nevertheless subjoins, that he would not expect much from galvanism in that form of asthma, which returns in violent paroxysms, alternating with perfect intermissions. He conceives that in such cases, there is spasm of the glottis, and the remedy does not possess the power of resolving spasmodic action. We have no experience with the powers of this agent in the treatment of the asthmatic paroxysm, but our confidence in its efficacy is very limited. We are free to confess, that it may be capable of achieving all that has been attributed to it by Wilson Philip in the forms of dyspnœa of which he speaks, but it will be seen by his own avowal, that the cases in which he employed it did not present the proper characters which distinguish a well formed paroxysmal asthma. There are frequently slight functional embarrassments of the organs of respiration proceeding from a protracted subacute irritation of the gastro-intestinal mucous membrane, or even of the heart itself, which may be relieved by the stimulating influence of galvanism. This may be easily explained. The irritation, whether it be in the mucous membrane of the stomach and intestines, or that of the bronchia, concentrates the greater part of the excitability of the part upon itself. The muscular or fibrous tunic is, therefore, left in a kind of negative state of excitement; its susceptibilities are diminished, and no longer contracting with its wonted activity, a difficulty of respiration will be induced, rather by a kind of paralysis of these fibres, than by a spasmodic constriction of them, such as exists in asthma. We often observe a parallel condition in the muscular coat of the bowels, arising from subacute or chronic irritation of the mucous surface. This irritation robbing the muscular fibres, as it were of their excitability, they become torpid and inactive; the peristaltic motion of the tube is suspended, and constipation ensues which can only be relieved by exciting the muscular fibres, by means of aperients and other appropriate remedies. This, then is precisely the condition of the bronchial muscular fibres in the cases described by Wilson Philip, and the whole efficacy of the galvanism depends upon its capability of arousing the fibres to

more vigorous action, and thus overcoming the semiparalyzed condition of the bronchial tubes.

Various other means have been employed during the paroxysm of asthma; such for example as vinegar and water, vinegar and molasses, and many others, which need not be enumerated. We are acquainted with an individual who is very liable to severe attacks of catarrhal asthma, attended with great difficulty of respiration, and spasm of the muscles of the glottis, who generally experiences prompt relief from a few spoonsfull of warm vinegar and molasses. We once knew another individual, who in consequence of exposure to a bleak atmosphere, was attacked with a paroxysm of the same character, of such violence, that the sense of suffocation was overwhelming, and there was complete extinction of voice. Complete relief was obtained in the space of a few minutes, merely from the administration of a few spoonsfull of a common domestic remedy, composed of honey, butter, and vinegar, mixed together by submitting them to a gentle heat.

It has also been proposed, with the view of cutting off a portion of the blood from the lungs, to constrict the members by means of a common tourniquet, or tight bandages. It is stated by Jolly, that he had several times found this practice advantageous. The benefit, however, was more striking, when the limbs were at the same time enveloped in sinapisms.*

But it is not sufficient merely to conduct the patient through the paroxysm: the next object should be to prevent the recurrence, and if possible eradicate the disease. Melancholy experience has demonstrated that this is no easy task. Nevertheless, when the disease is not complicated with any incurable organic lesion, we should not despair, but use every means that our knowledge of the pathology of the malady can suggest, to rescue the individual from his sufferings.

Active evacuants of any kind will not often be called for during the interval of the paroxysms. General blood-letting, so useful during the fit, will seldom be admissible to a great extent in the stage of intermission. In some instances, nevertheless, where the individual is young and robust, where the disease is recent, and attended with evidences of acute bronchial or pulmonary inflammation, it may be necessary to detract blood freely from the arm. A frequent repetition of the operation will however, be seldom demanded, or even proper. Local bleed-

* Dict. de Med. et de Chirurg. Pratique, tome iii.
Geddings on Asthma.

ing, by the occasional application of a few leeches, or what is generally better in this disease, the frequent application of cups, will constitute one of our most efficient agents. But to produce much permanent good effect, the cups should be applied twice or thrice a week, for some time, until a manifest impression is made upon the bronchial irritation, after which a longer interval may be allowed to elapse. The object is not merely to abstract blood, but to divert irritation, by keeping up a permanent revulsive impression. They should be applied alternately to different parts of the chest, between the shoulders, and to the nape of the neck, so as to act as near as possible to the origin of the pneumo-gastric nerve. It will also be advantageous to apply a few leeches frequently to the verge of the anus, or if the disease has succeeded a suppression of the menstrual discharge, to the vulva or the inner part of the thighs. We have known the best effects follow this method of practice in pulmonary diseases, and it is much to be regretted that it is not more frequently adopted. Nature has indicated the intimate relationship between the lungs and the anus, by the frequent development of fistulae in the latter situation in phthisis pulmonalis, and the fatal consequences which ensue when they are healed, yet physicians have neglected, for the most part, to found upon this fact, any indication in the treatment of disease.

We have already spoken of emetics and cathartics as remedies for the paroxysm. They have also been recommended during the intermission. Emetics tend to create a strong revulsive determination towards the stomach, and by thus transferring irritation from the lungs to that organ, they may sometimes break up the force of the disease, and prevent its recurrence. But to produce this effect, they must be frequently repeated. This unfortunately often leads to an exasperation of the very sufferings which we are endeavoring to remove; for although the strong impression, created by the emetic, may transfer the irritation from the bronchia, this transfer is generally only temporary. So soon as the force of the new impression subsides below the degree of intensity of that of the bronchia, the latter in its turn becoming the stronger of the two, will create a revulsive impression in an opposite direction, and concentrate upon itself the irritation of the stomach, and thus augment the original disease. These considerations should deter us from the frequent employment of these remedies during the interval. The circumstances of the case may sometimes call for their administration, but as a general rule, they are at best precarious
remedies, and should not be often répeated. It is true, that nume-
rous cases have occurred, in which the accidental development
of gastritis has suspended the asthma during the persistence of
the affection of the stomach, but as soon as the latter has sub-
sided, or abated in violence, the original disease has often recur-
red with redoubled intensity.

Nearly the same remarks may be made in relation to cathar-
tics in this stage of the disease. Active purging will never be
necessary or proper, but gentle aperients and alteratives, as al-
ready stated, will often be useful. In addition to their other
effects, they act precisely in the same manner as emetics, by
transferring irritation from the bronchia to the intestines. It
has been often remarked, that an attack of diarrhœa, will ward
off a paroxysm of asthma, and that while the affection of the
bowels continues, the individual is entirely exempt from the
embarrassment of his respiration. Professor Potter reports a
case which furnishes an excellent exemplification of this princi-
ple. He, however, attributes the result to the reduction of the
system occasioned by the newly contracted disease, but we
are disposed to ascribe it to the revulsive impression maintained
by it. An individual, who had suffered under asthma for twenty
years, and who had never passed two months without a paroxysm
during that time, during a southern tour, contracted a diarrhœa,
which continued from November until March. One year elapsed
before he recovered his usual weight, and during this time he
experienced not one asthmatic feeling; but no sooner had he re-
trieved his loss, than the disease returned with all its pristine
force and frequency.*

The efficacy of diuretics in asthma was noted by physicians
at a very early period, and Celsus, commenting upon the im-
portance of keeping the bowels open, subjoins, "prosunt etiam
quaecunque, urinam augunt." Hoffman also remarks, that in the
cachectic state of the system to which asthma is superadded,
diuretics are beneficial. Baglivi, moreover, inculcates the ne-
cessity of promoting the discharge by the kidneys in all diseases
of the chest,—advice which is certainly well founded in many
of those affections, especially when, as is often the case, there is
effusion in the pleura and pericardium. This indication seems
to be pointed out by nature by the abundant discharge of urine
which sometimes takes place spontaneously, and which is occa-
sionally so copious as to resemble diabetes. Rhodius reports a

* Gregory's Practice, vol. ii. p. 188.
case in which the individual was cured of a paroxysm after voiding, within a short interval, thirty-seven pints of urine. With the view of promoting this discharge, Percival and Ferrier prescribed the digitalis, and as they represent, with considerable success. Others, however, and especially Bree, declare that it has disappointed their expectations. Much doubtless depends upon the form of the disease in which it is administered. Where there is no effusion, but merely a condition of simple irritation accompanied with spasm, nothing can be expected from the medicine; but when dyspnœa exists, associated with a collection of fluid within the pleura and pericardium, and which frequently simulates asthma, from the known powers of digitalis in hydrothorax, we doubt not it will be found beneficial. Nitrate of potash, squill, colchicum, and other diuretics, may be given for the same purpose.

Narcotics may be useful during the interval as well as in the paroxysm. Prudently administered, they will tend to subdue the inordinate susceptibility of the bronchial mucous membrane, and thus to diminish the liability to the disease. The various articles already enumerated may be employed with this intention, care being taken not to push their use so far as to occasion any serious impairment of the tone of the stomach. It has been proposed by Lennec, to place the asthmatic on a footing with those animals which spend their winters in a state of torpidity, by diminishing the necessity for respiration. He remarks, on the authority of Mangili, that while in this condition, animals breathe a hundred parts less air than they do while in a state of activity. This torpid condition approaches that of natural sleep, in which the individual consumes less air than when awake. To prove the advantages likely to accrue to asthmatics, by inducing a state analogous to that of torpidity or continuous sleep, he adduces the fact, that such persons suffer much less from dyspnœa while involved in sleep than during their waking hours. If then, he conceives, we can diminish the necessity for respiration by artificial means, and continue that condition permanently, we shall ensure the individual all the advantages which he realises while in a state of tranquil slumber. This he thinks may be partly accomplished by the use of narcotics.

From the catarrhal symptoms which are associated, expectorants naturally suggest themselves as useful adjuvants to the other remedies. We accordingly find, that in those forms of the disease which are attended with a viscid, ropy, bronchial secretion, or even a paucity of the mucus elaborated by the lining
membrane of the whole air passages, the judicious administra-
tion of expectorants will be productive of much benefit. Our
knowledge of the pathology of the disease will convince us,
evertheless, that these means should not be relied on to the
exclusion of others. In general, when there are evidences of
much bronchial irritation, the most eligible articles will be the
different preparations of antimony, especially kermes mineral,
antimonial powder, or even minute portions of tartar emetic.
Ipecacuanha is also useful under the same circumstances. Both
these articles should be given in small portions, and to increase
their effect, they may be combined with polygala senega, com-
 pound syrup of squills, and in the more advanced or chronic
stage, where there is not much irritation, with gum ammoniac,
or even some of the balsams.

Alkalies were formerly much employed for the same purpose,
and have been strongly recommended by Sarcone, Mascagni and
others. They have likewise been well spoken of, more recent-
ly, by Lænnec, Forbes, and Copland. The carbonates of pot-
ash and soda will be found the most appropriate. They may
be either given alone, or in combination with oils, and other
substances calculated to co-operate with them.

But of all the means which we have at command, during the
interval of the paroxysm, revulsives, or derivatives, are decided-
ly the most useful. This fact did not escape the attention of the
early physicians. They were particularly aware of the impor-
tance of recalling to the surface cutaneous eruptions which had
been repelled; and we accordingly find, that Zacutus Lusita-
nus, and Baglivi, strongly inculcated an attention to this circum-
stance. We have already spoken of the repeated application of
cups. Their efficacy is owing more to their power of creating
revulsions, than to the abstraction of blood. Hence, when the
patient is too much enfeebled to bear any loss of blood, dry cup-
ping may be practised daily, or once in two or three days, with
great advantage. With the same view, blisters, setons, issues,
frictions, moxas, &c. may be employed with the prospect of
much benefit. They should not be resorted to until the system
has been reduced to the revulsive point by previous depletion;
but that accomplished, they may be applied to the chest, the ex-
tremities, or along the spine. It will likewise often be useful to
cup freely in the latter region. In many cases a Burgundy pitch
plaster, sprinkled with tartar emetic, and worn upon the chest,
until it brings out an abundant crop of pustules, will be one of
the most effectual means of maintaining counter irritation. But
whatever plan be adopted, the impression must not be transient, but to produce any permanent good, must be kept up for some time. Zacuteus Lusitanus and Severinus, recommend the application of the actual and potential cautery to the nape of the neck,* and this practice, which is founded upon correct principles, has been much adopted of late on the continent, and as we are informed, with very happy results. Parry has reported a case which strongly exemplifies the importance of revulsives in the treatment of asthma. A major general, who was so sorely afflicted with asthma that he could not reside in London, went to India in 1776, and during the monsoon, was obliged to sit up in bed about an hour every night, sometimes from twelve to three in the morning, with straightness of the chest, which went off with some spitting. He continued in this state till 1781, when he received a shot from the French, at the siege of Arcott, which fractured the humerus, and obliged him to have it amputated. He lost a great deal of blood, and it was six weeks before the parts healed. For many years afterwards he had scarcely any asthma.†

Nearly the whole range of mineral and vegetable tonics have been called into requisition in the treatment of this disease. The reports of their effects have been variable and contradictory. We are free to confess, that we have no great confidence in their efficacy, yet there may be conditions developed in the course of the disease, which may call for their administration. Those which have been most employed are the sulphate, carbonate, muriate, and phosphate of iron; the sulphate and oxide of zinc; the acetate of lead; Fowler's solution of arsenic; bark, quinine, columbo, gentian, quassia, and in short a complete farago of bitters and astringents, which it would be superfluous to enumerate. If the organs be relieved from the irritation under which they are laboring, and the excitement of the system be equalized, there will seldom be much necessity for tonics; and if these precautions be neglected, such remedies will generally disappoint our expectations, and cannot be productive of much benefit.

Whatever course of treatment be pursued, remedies will not avail much, unless aided by a strict attention to the rules of hygiene. There is perhaps, no disease in which the tendency to recur is so strongly developed, and in which so much caution will be requisite on the part of the patient to secure his escape.

* Copland. loc. cit.
† Parry's Posthumous Works, vol. 2, p. 35. 1825.
A strict attention must be paid to diet. Frictions with the flesh brush should be frequently employed, and cold bathing, where not contraindicated by the circumstances of the case, will often be highly beneficial. The sea water bath will be the best, but when not available, common salt or mustard flower, may be added to the bath. Frictions with cold vinegar and water, spiritus mendereri and pyrolignous acid, &c. have been recommended by Copland, and we have no doubt they will often prove salutary. Change of air when practicable, should be enjoined; and moderate exercise in fine weather, will often tend to invigorate the general system, and weaken the predisposition to the disease. The clothing should also be so regulated as to protect the system against the vicissitudes of temperature; a perfect tranquillity of mind should be as far as possible preserved, and all excessive indulgences carefully avoided. By a strict observance of all these precepts, the asthmatic may be enabled to attain a good old age, with comparatively trifling suffering from the disease; but if he neglects them, and runs counter to the rules of temperance and prudence, his sufferings will not only be poignant, but he will inevitably fall an untimely victim to the ruthless career of his malady.

Art. V. Case of extraordinary Tumor attached to the Occipital region of the head. By E. S. Bennett, M.D. of Charleston, South Carolina; communicated in a letter to the Editor.

The subject of the present case was a female slave. She was born on the plantation of my father, in 1815, and at the period of birth was perfectly healthy. But when she was about four weeks old, a small tumor of the size of a ten cent piece made its appearance a little to the left of the right mastoid process. It appeared to be firmly adherent to the bone, and was elevated about half an inch above the level of the surrounding parts. It retained this character until she was about two years old, when being engaged in the study of my profession, and anxious to perform an operation, I attempted to remove it, in presence of one of my fellow students, Dr. Malcolmson. As soon as the integuments were divided, a white medullary substance presented itself to our view, and the child rolled up its eyes and ceased crying, and lay as if in a heavy sleep. As this occasioned us some alarm, we brought the lips of the wound together, and kept them in that state by adhesive strips. Much inflammation en-
sued, but by very close attention she recovered in six or eight weeks.

No other effort was ever made to remove the tumor; but soon after the period referred to, a second tumor of the same character made its appearance on the opposite side of the occiput. In a short time they both began to spread, and gradually approaching each other, they finally became united by one broad expanded base, which was inclined rather towards the right side. Increasing progressively, when she was about six years of age, they had attained the size of an ostrich egg. At this period it

was discovered, that two large openings existed in the bone, immediately beneath the places upon which the tumors had first made their appearance. These were found on examination, to pass entirely through the bony plates, so as to admit of a free communication with that portion of the cerebellum over which they were situated. If at either of these points slight pressure was made, she would fall down insensible as if struck with a
heavy mallet, and would almost as speedily recover, when she would ask why she was so severely beaten on the head. Up to this period of her life she enjoyed excellent health; her mental as well as her bodily faculties were very good, and with the exception of the weight of the tumor, which was a source of inconvenience, she seemed to enjoy life as much as other persons.

From this period I was absent from Carolina for three or four years, and did not hear from her until my return, when she became my property. She was now about eleven years of age. After she had been in my possession about a month, she was detected in soliciting venereal embraces from the young men of the plantation, which her mother and friends used every means to prevent, but without any effect. When not permitted to go out, she would fret and cry, and resort to masturbation to subdue the high degree of venereal excitement with which she was affected. From this period of her life, her venereal propensities were ungovernable, and continued so until her death, which took place at the age of seventeen. She was, however, never impregnated.

Several years previous to her death, the tumor had increased to an enormous size. It was inclined slightly to her right side, and descended nearly to the elbow. Her right ear was drawn downwards by the tumor, and was attached to its inner surface about 13 inches below its natural situation.

To your inquiry "did she ever have any convulsive motions, or loss of muscular power?" I answer, never. Her health was always good, and I do not remember ever having given her a dose of medicine, except on one occasion, when she was attacked with remittent fever.

"Where did the tumor first shew itself,—within, or exterior to the cavity of the cranium?—It appeared to be attached to the bone by a firm adhesion, but evidently passed through it; for at the time I attempted to remove it by the knife, a white medullary tumor of the appearance of the brain, induced us to suspend the operation.

You will no doubt remember that at the time you saw her, she was very nearly as I have described her.* I will now attempt to give you an imperfect outline of the results furnished by the examination of the tumor, when I obtained the head, or at least so much of it as remained. A portion of the cerebellum, as large as a shaddock, protruded through the opening on the left

* This was in 1829 or 1830.—Ed.
side of the occipital bone, and through that on the right side, another portion as large as an orange. They were evidently medullary. The small spiculae of bone which are seen passing across one of the openings in the occipital bone, had penetrated deeply into the base of the medullary mass, but apparently without any injury to the part.

At the time of death, or a little before that period, the tumor still presented two lobes. The larger measured from the anterior fontanelle to its lower end twenty-four and a half inches: the smaller or superior lobe, from the same point seventeen inches. The lower extremity of the greater lobe was about ten inches thick; that of the smaller about six and a half inches. The surface of the tumor you may remember was rough and corrugated, and covered with scattered hair, resembling the appearance presented by an enlarged scrotum.

It may be well to remark that there never was any disturbance in the circulation. The pulse was as regular as that of a person in perfect health. Her death was no doubt occasioned by apoplexy, induced by carrying on her head a large tub of water, which pressed heavily upon the brain.

Charleston, Nov. 6, 1833.

We had an opportunity of examining the tumor described above, at the period already referred to. It then hung pendulous from the back part of the head, and descended, with its broad expanded lobes, some distance down the back, not unlike a common knapsack. At the point at which it communicated with the skull there was a strong pulsation which was isochronous with that of the brain. Through the politeness of Dr. Bennett, the skull is now in our possession. The openings which exist in the walls of the cranium, extend on each side, along the course of the lambdoidal suture. They are both of an oval configuration, and have their margins attenuated. The latter are also somewhat irregular, and have several small sharp projections of bone standing out from them. The openings are formed mostly at the expense of the occipital bone, but a small portion of the posterior margin of the parietal bone on each side has also been removed. The longest diameter of the opening on the left side measures, from the centre of the mastoid process, or the point at which the petrous portion of the temporal bone unites with the mastoid, in the direction of the lambdoidal suture, two and three quarter inches; the lesser diameter two and a quarter inches. The long diameter of the opening on
the right side, which ranges in the same direction, is about two and five-eighths inches, the short two inches. The portion of the occipital bone which is situated between them is considerably attenuated. The foramen magnum is converted into an elongated oval opening, having its posterior contour very much narrowed, and reduced almost to an acute angle. Editor.

The subjoined sketch, drawn from the admeasurement of the tumor, and in part from memory, will serve to convey some idea of the appearance and extent of the morbid growth.

A. Anterior fontanelle.
B. Lower end of the greater lobe, the length from A to B twenty-four and a half inches.
C. Ear drawn down thirteen inches below the meatus auditorius.
D. Lower end of the lesser lobe, seventeen inches from A.

Art. VI. Observations on some of the Causes of Secondary Hemorrhage. By N. R. Smith, M.D. Professor of Surgery in the University of Maryland.

There occurs to the surgeon no more unpleasant, or reproachful necessity, than that of exposing a wound recently dressed, for the purpose of securing bleeding arteries. There are causes often giving rise to this necessity, which I am persuaded, by my own experience, have not been sufficiently dwelt upon by practical writers. A few pages in this place, therefore, may not be unprofitably occupied with their exposition.

It is an admitted principle in pathology, that irritation in any part, created by whatever cause, produces an afflux of blood to that part. Consequently any thing which in the management of a wound is allowed to inflict irritation upon the injured part, and increase the excitement of the wounded vessels, may become a source of hemorrhage. If I mistake not, such causes of irritation may often be found in the modes of treatment commonly regarded as applicable to such injuries. I allude particularly to the following:

1. Sutures.

Happily sutures are far less generally employed in surgery than formerly. Their frequent employment is condemned by modern surgeons because of the inflammation which they excite, the ulceration which their presence occasions, and the
marks which they leave in the skin. I am not aware that they have often been avoided because of their occasionally producing hemorrhage, but this in my opinion should be an important reason why they should be far less generally used than even they now are.

I had occasion, three years since, to extirpate a tumor from the back of a patient in the Baltimore Infirmary. The skin was pretty extensively involved in the disease and consequently I was under the necessity of removing a broad elliptical incision, hoping, however, to be able so to close the receding lips of the wound, as in a great degree to cover the exposed surface with integuments. The integuments of the back being rigid, and the sub-cutaneous cellular tissue of that region less yielding than in others, I found it impossible to effect as close an approximation as I desired with adhesive plasters, and I resolved to employ the interrupted sutures. These I applied as usual, and made as much traction with them as I deemed prudent. Adhesive plasters were also employed to sustain the sutures.—Two or three hours after the wound was dressed, I was called in haste to my patient, and was informed that he was bleeding freely from the wound. On reaching him, I learned that soon after the dressing had been completed, he had begun to complain of severe pain from the action of the sutures, and upon this the bleeding had soon followed. I immediately removed the dressings and found blood to be still copiously issuing from the wound. Much coagulated blood had accumulated in the wound, and by distending its walls had increased the painful tension of the sutures. To my surprise I found that one of the sutures had, on one side, cut entirely through the skin which it included. I immediately cut out the other stitch, and the lips of the wound quickly receding, I turned out a large coagulum from its cavity. Although the blood was flowing freely at the time this was done, yet the instant it was accomplished, and the parts were thus relieved of all irritation from the ligatures, and from the presence of the coagulum, it wholly ceased. I was unable to discover any considerable vessel from which blood had flowed, and although I applied ligatures to some points from which blood appeared to be slightly oozing, I was by no means certain that I had sufficiently guarded against the recurrence of hemorrhage. I then applied adhesive plasters, not endeavoring to draw the margins of the wound into contact, believing that I might soon be again under the necessity of searching for bleeding vessels.
Smith on Secondary Hemorrhage.

The patient, however, complained of no more pain, and there occurred no more bleeding. There might, it is true, in this case, have been an accidental coincidence between the relief of irritation which the part was suffering, and the sudden cessation of hemorrhage; but it is at least probable that these events stood in the relation to each other of cause and effect. This case having drawn my attention to the subject, I have since ascertained that secondary hemorrhage far more frequently occurs from wounds, when sutures are employed to close them. After amputating the female breast on account of schirrus, and when it has been necessary to sacrifice some portion of integument, I have sometimes found it necessary to open the wound for the purpose of securing bleeding vessels, and I find on recurring to my note book, that this, when it has happened, has almost always occurred in those cases in which I had deemed it necessary to employ sutures.

Since I have more generally avoided the use of sutures, in the treatment of wounds, I am persuaded that secondary hemorrhage has far less frequently occurred in my practice than before. A little reflection, indeed, must convince us that they must necessarily have the effect of inducing an afflux of blood to the part, for even where no previous injury had been inflicted, such an irritant would not fail soon to produce a sense of throbbing, and an inflammatory blush. In the vicinity of a wound such an effect must more certainly occur.

2. Adhesive Plasters.

In naming adhesive plasters as a cause of hemorrhage from wounds once dressed; let it not be understood that I design to condemn the general and proper use of these means of closing wounds. It is indeed impossible to effect with them the mischief which is often occasioned by the injudicious use of sutures; and yet even adhesive strips are not always innocuous in regard to hemorrhage. The adhesive plaster is sometimes prepared of stimulating ingredients, which applied in any manner to the skin will necessarily excite its vessels. When much force is used with adhesive strips, to unite the lips of a wound, the patient will almost always soon begin to complain of painful traction of the skin, and of a smarting sensation where the adhesive plaster takes hold of it. True, they will generally soon drag along the skin, and thus become relaxed, but often not till they have created much irritation in the wound. I am confident that I have known hemorrhage often to result from irritation thus
induced in a recently dressed wound, and I have seen that hemorrhage instantly cease on the removal of the strips for the purpose of securing vessels.

No advantage results in regard to the union of a wound from the employment either of sutures or the adhesive strips, with such a degree of force as to be distressing to the patient. Not only are they sometimes productive of hemorrhage, but when thus applied they generally fail to accomplish the very object for which they are used, for the stitches will generally prematurely cut through the skin, and the strips will soon so slip upon the skin as to be no longer of any avail.

3. A Coagulum lodged in the Wound:

To some, it may seem absurd, that while we know that the coagulum is the principal immediate means by which nature temporarily arrests arterial hemorrhage, this agent should sometimes be the principal cause of its continuance. That such, however, is sometimes the fact, I am assured by my own observation. A coagulum of small volume does indeed arrest hemorrhage, and probably contributes to union by the first intention. But one which painfully gorges a wound, produces a directly opposite effect. When a wound has been so closely dressed that blood cannot issue from its cavity—when, perhaps, also, it has been closed before the usual oozing of blood from small vessels has ceased, an accumulating coagulum soon begins to distend its walls, and to increase the tension of stitches (if they be employed) and adhesive strips. Perhaps, also, the parts wounded are of such a structure, that some sensitive tissue is put upon the stretch, and much irritation thus produced. It cannot be a matter of surprise that under such circumstances a coagulum should be the very cause of hemorrhage which it usually suppresses. I have sometimes found a wound thus bleeding, and have proceeded to expose the bleeding vessels for the application of the ligature. I have found the parts distended, and hard, from the presence of the coagulum, and the patient suffering greatly from the irritation caused by it, a throbbing sensation being usually present. As soon as the coagulum has been turned out from the bottom of the wound, I have seen all this suffering instantly cease, and simultaneously, the blood which issued from many small vessels, has ceased to flow, and I have been unable to ascertain the points from which it issued; though frequently, it is true, the effect will not so promptly cease after the removal of the cause.
4. *Compresses employed to arrest or prevent Hemorrhage.*

Under some circumstances, compresses judiciously applied, are undoubtedly effectual in arresting hemorrhage even from wounded arteries of considerable magnitude; but there are many instances in which a compress is not only ineffectual, but absolutely pernicious in regard to hemorrhage, being itself indeed the principal cause of its continuance. Some months since, I was called to a case of secondary hemorrhage from a wound inflicted upon the palm of the hand. It was the deep palmar arterial arch which had suffered injury, and two weeks had now elapsed since the accident. Hemorrhage had occurred about a week after the first closure of the wound, and had recurred every day, or oftener, till the time that I saw the patient. An intelligent physician, who attended the case, had made several ineffectual attempts to secure the bleeding vessel, which, being deeply buried in a narrow wound of firm parts, was approached with great difficulty. After each attempt he was compelled to resort to the compress. This was applied exterior to the wound, and was confined by a roller in the ordinary mode. The bleeding, however, still occasionally recurred, and it apparently became necessary to bind the compress still more firmly. On its first application the patient complained of irritation caused by its pressure, and this became much aggravated by the increased tightness of the bandage whenever the hemorrhage returned. But the periods of bleeding became more frequent, and the flow more rapid. When I entered the room, a little mental excitement being probably produced by my entrance, the blood gushed from beneath the dressings, and flowed with more rapidity than I had supposed possible from so small a vessel. I immediately stripped the dressings from the hand, and found the stream of blood issuing from beneath a firm compress which was very tightly bound to the hand. On removing the compress I found that its pressure had been so severe as to occasion a high degree of inflammation, and even to a small extent sloughing. A great degree of feverish excitement existed in the whole hand, and there was preternatural pulsation in the arteries of the fore-arm. It was manifest indeed, that there was a very unusual afflux of blood to the wounded hand, and this was no doubt, in a great degree, caused by the action of the compress which seemed necessary to check the immediate flow of blood. I secured the vessel with some difficulty, and then covered the wound with simple dressings. The patient immediately ceased to complain.
of any irritation in the hand; the inflammatory excitement in the
member ceased; there occurred no more hemorrhage, and the
wound soon healed.

I have witnessed a very similar result from the application of
a small, hard, compress to a branch of the temporal artery. It
at first commanded the hemorrhage; but the patient soon began
to complain of severe pain from its pressure; the collateral
branches began to throb with great force; the compress was lift-
ed by the impulse given to the artery where it was wounded,
and hemorrhage took place. The dressings were removed for
the purpose of securing the vessel; but on thus taking away the
source of irritation, the bleeding spontaneously ceased. We
waited some time for hemorrhage to recur, in order to distin-
guish the bleeding vessel; none however recurred; the wound
was then dressed lightly, and no more bleeding took place.

Were certain precautions attended to in the application of the
compress, I am ready to admit that this degree of irritation
would rarely result. The mischief usually arises from the un-
necessary pressure of the compress on sensitive parts surround-
ing the bleeding vessel. When the form of the compress is well
adapted, and is made to bear directly on the vessel itself, a very
slight degree of pressure is sufficient to command an artery of
small calibre. But if the compress be ill-adapted, and diffuse
its pressure widely around the bleeding point, great force must
be employed to accomplish the object, and some sensitive part
is sure to suffer. When a compress is resorted to, the wound
(unless the soft parts are thin and cover a bone) should be ex-
panded, the bleeding point exposed, and a small piece of sponge
pressed directly upon it, within the lips of the wound. Another,
somewhat larger, is to be super-imposed, and then another, un-
til we have formed the graduated compress, which is then to be
confined with the gentle pressure of the bandage.

Whoever for a moment calls to mind certain principles in
hydrostatics, will readily conceive under what great disadvan-
tage pressure is made for the purpose of commanding hemor-
rhage, if it be applied to the exterior of a wound, with the intent
of commanding the flow of blood by pressure diffused over the
whole exterior of the cavity which receives the fluid. The blood
issuing from an artery into such a cavity, presses upon its walls
on every side with precisely the same force as that with which
it issues from the orifice of the artery. Consequently there is
required as much more force to stop the hemorrhage by pres-
sure over the whole region of the wound, as the extent of the
surface of the wound is greater than a section of the artery. We very well know, that when we open a wound and apply the finger directly to a bleeding artery, we command it with very gentle pressure. But when we close a wound in voluminous soft parts, and then attempt to command the bleeding by the pressure of the whole hand, we find it impossible.

Compresses, however, used to suppress arterial hemorrhage, must always be productive of some degree of irritation, and should, therefore, never be employed when the ligature can be applied, or torsion of the artery practised.

5. Foreign Substances in the Wound.

The lodgement of foreign substances in a wound is a well known source of irritation, and consequently may be productive of hemorrhage. They should, therefore, be carefully sought for and removed, provided the means employed for this object do not create more irritation than would the presence of the foreign body.


In several instances in which I have been under the necessity of opening wounds once dressed, on account of hemorrhage, I have found that the bleeding had occurred from some minute artery just beneath the skin, and closely adherent to it. This circumstance I account for in the following manner. The artery being situated in the dense tissue adherent to the internal surface of the skin, instead of being involved in a loose sheath, as are usually the deeper vessels, can not retract and conceal its orifice in a manner favorable to the formation of a coagulum in its sheath. The mouth of the vessel remains exposed close to the lips of the wound, and the coagulum within the wound, closing the deeper vessels, will have no effect upon this. Those arteries of the skin are also more influenced by sutures, adhesive plasters, &c. which directly exercise their irritation upon the surface. Hence the importance of carefully searching for, and securing such cutaneous vessels.

7. Pressure of Soft Parts upon a Sharp Margin of an Amputated Bone.

When, in performing amputation, the surgeon has unfortunately not preserved soft parts, and especially skin of sufficient extent to cover completely the face of the stump, in his solicitude to close the parts as accurately as possible, the integuments,
and sometimes the muscles, are sometimes drawn with much force over the sharp margin of the amputated bone. Great irritation must necessarily be the consequence; and we know that often sloughing results from it. This therefore must be occasionally a source of troublesome hemorrhage, as I am confident I have witnessed in several instances.

From what has been advanced, is to be inferred the general precept, that in the treatment of all wounds in which many small vessels may have been divided, every thing should be avoided in the treatment, which renders the condition of the part uncomfortable to the sensations of the patient, especially all irritating traction and unnecessary pressure.


_\text{l}_ is an elastic gum tube (smaller than a tube of a stomach pump and shorter), having an orifice through it from _\text{o}. _\text{d} and _\text{e} are springs, which remain open when without the cap _\text{c}, but when the cap is on, they are placed flat on the tapering portion of _\text{l}. Their number may be six or eight, a little rounded or globular at the end, and made of wire, or of springs if made so as their long sides would be curved towards one another, and have the convex surface external, and their points defended by globular terminations. The more numerous they are, the more probability exists of entangling a foreign body, and not allowing it to escape; yet their number must not impair their strength.

\[\text{Diagram of the instrument}\]

_\text{b}_ is a wire which passes through the tube at _\text{o} and _\text{f}, and screws into the cap at _\text{h}, which is a piece of metal in an elastic cap _\text{c}. _\text{c} is the elastic cap made to fit on _\text{d} and _\text{e}, and press them down on _\text{l}, and has in its cavity one or two rings, to give it firmness and permanency in the dimensions of its periphery and to assist in compressing the springs.

_\text{a}_ is a handle to screw on _\text{b}. _\text{g}_ is a ring at the opening of the cap, and forms its brim. _\text{b}_ is a wire which must be strong,
without preventing its flexibility; and in fine, this is the object of every part of the instrument. \( f \) is a ring on which the springs are fastened, and which is placed on the extremity of \( l \).

When the cap is on, it resembles in some respects a catheter with a stilette. The tube is passed down the throat until the cap has gone beyond the foreign substance, if it can be passed. The gum elastic tube is then taken in the left hand, while the stilette is pushed on with the right, and by this motion the cap recedes, the springs open, and then the instrument is brought forward, seizing the body between it and the springs. The stilette is gently pulled upon, to bring the cap on the springs and to press the springs on towards the tube, and with this hold the extraneous matter is removed.

If it be objected, that the size of the cap is too great; this can be easily remedied by those who desire it, by substituting a ring near \( f \), in the place of the cap to close the springs, and make the extremity more smooth and rounded.

The springs could be made of different lengths, with excavations in the tube, to receive them and the heads of the springs, without impairing its strength.

_New York, October 23, 1833._

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**Case 1. Puerperal Convulsions, Hyperæmia of the Brain, with effusion of blood, &c.**

August 19th, 1833. I saw Mrs. Jury, at 10, A. M., and received the following account of her case. "For several days before her labor which came on yesterday, she was troubled with a sense of fulness in the head. During labor this increased to giddiness and pain. At three o'clock this morning had a violent convulsion, during which a dead child was expelled, an old woman in attendance, since which she has had two fits, laying in the intervals in a stupid condition, taking no notice." She now lies apparently in a deep sleep; eyes closed; breathing deep, not stertorous; she opens her eyes when loudly called, rolls them vacantly, and then closes them again; pulse is slow, rather full, and moderately firm; abdomen flaccid, temperature natural. I opened a vein and suffered the blood to flow till re-
laxation was produced, only twelve ounces were drawn. Sinapisms were applied to the spine and to the ankles; directed enemata of soft soap; she was unable to swallow. 2, P. M. has had one convulsion since my last visit; extremities cold; pulse very feeble; sinking fast. She died at 6, P. M.

*Inspection* sixteen hours after death, by Dr. Warner, in presence of Dr. Fonerden and myself.

*Abdomen.*—Much distended by gas in the stomach, and small and large intestines; with which exception these viscera presented nothing abnormal. The liver presented traces of old disease. Uterus contracted and natural in its aspect.

*Head.*—Dura mater surprisingly injected; hyperæmia of arachnoid, of the cerebrum and cerebellum, with effusion of blood on the under surface of the left posterior lobe of the cerebrum, where a small coagulum was found; hyperæmia so great, that innumerable bloody points followed the scalpel wherever the brain was sliced; slight effusion in the ventricles.

*Remarks.*—The practice if not the pathology in this disease, is pretty nearly fixed in this country. The lancet is emphatically our sheet anchor. No one here would rely upon opium; no one would depend upon delivery or the emptying the uterus alone for a cure. In the familiar language of Dr. Gooch, “We take care of the convulsions, and leave the uterus to take care of itself.”

The impropriety of trusting to delivery, is strikingly shewn by this case, as the fetus was expelled in the very first paroxysm of convulsions; yet they continued, and fatal lesion occurred in a very few hours, even before I saw her.

That delivery is important, nay even essential, in many cases, we do not deny, acting as it does in abating irritation, relieving from compression the abdominal aorta, and preventing the throes of parturition, which always increase the danger of fatal mischief; but I protest against its indiscriminate use. We believe, then, that whatever may be the exciting cause of ecclampsia, its seat is in one or both of the great nervous centres, and that the morbid action is an excited one, ending either in resolution, in general hyperæmia, or in effusion of blood or serum.

**Case 2. Arachnitis, Hyperæmia of the Brain, &c.**

Thomas Chubbs, aged three years, after slight fever for a day or two, was seized with strong general convulsions, March, 31st, 1833, of which he had had two fits before I saw him;—general circulation not much excited; head very hot; some heavi-
ness. He was freely leached on the temples, and had the warm bath. The cold dash to the head was used repeatedly, and he was actively purged. Under this treatment every symptom disappeared in five days. He remained perfectly well until the latter part of August, when he took the whooping cough.

Sept. 3d. He was seized with convulsions, and I saw him. The pulse not being much excited, he was purged freely; had cold evaporating lotions to the head, with the warm bath.

Sept. 4th. General excitement; pulse full and strong; cough urgent. He was bled from the jugular vein to four ounces, which produced great relaxation; the purgatives continued.

5th, 6th, and 7th. Progressive improvement.

9th. Head relieved.

14th. I called accidentally, and found the child dull and feverish; learned that he had had fever for several days, especially at night; that his cough was troublesome, and that his bowels were loose, with straining. Pronounced him very ill; ordered calomel gr. i. magnes. ustæ, gr. v. every hour. 2, p. m. Suddenly worse; cannot swallow; takes no notice. 5, p. m. Upper extremities rigid; pulse very quick and feeble; a blister to the dorsal vertebrae.

15th. Several convulsions in the night; blister drew well; failing very fast; upper extremities rigid and contracted; head thrown back; feet cold; died at noon.

Inspection, four hours after death, by Dr. Warner. Aspect of the brain externally a muddled pink; hyperæmia well expressed over the whole cerebral mass; capillaries of the arachnoid much injected on the convolutions, and particularly at the base of the brain; the capillaries on the anterior face of the medulla oblongata so thoroughly injected as to present the appearance of a coagulum of one inch in extent.

Remarks.—In the result of the first attack, which this patient suffered, we have an example of the quick relief which we are sometimes enabled to give by apt remedies, even in the more severe cases of cerebral disease. Local blood-letting, with the cold dash, aided by purgatives, &c. very quickly removed the most formidable symptoms. In the second attack, the abstraction of blood from the external jugular, produced effects equally decided. In children, this vein is opened more easily than any others, and should always be preferred in head affections, as we can thus combine the advantages of general and local depletion. The relief, in this instance, would have been permanent, but for the unfortunate co-existence of whooping cough, of itself a fre-
quent exciting cause of the cerebral irritation. In the inspection, we have a specimen of general hyperæmia, aggravated to such an extent in the capillaries at the head of the spinal column, as to present the semblance of a coagulum.

**Case 3. Hydrocephalus, Hyperæmia of the Brain, with large effusion of serum, granular deposite on the membranes, &c.**

Aug. 15th, 1833. Mary Barney, aged five years, enjoyed good health till last winter, when she had varioloid, at which time she is said to have had inflammation of the brain. She has never been entirely herself since. She has, for the last week, been laboring under fever, with diarrhea. She now has some headache, a furred tongue, and some fever, which suffers an exacerbation at night. She was ordered a purgative, &c.

17th. Fever abated so much, and other symptoms so mitigated, quinine was directed, under the impression that her disease was intermittent, which prevailed at the time.

19th. Fever not so high last night. She was very restless, however, and frequently screamed without complaining of any particular pain. This morning she appears to be asleep; pulse soft and regular; skin natural.

20th. Disposed to sleep; eyes closed; she only opens the right eye when called; the lids of her left eye are swollen; the eye intolerant of light; she has an inclination to bite; carries your hand to her mouth if you permit; bowels natural; skin hot; leeches to the temples; cathartic.

The symptoms continued with but little alteration, except an increase of insensibility until the 25th, when she died, without the occurrence of convulsions. In the meantime, the usual remedies, viz. mercurial purges, blisters, &c. had been diligently employed, without in the least affecting the progress of the disease.

**Inspection by Dr. Warner.**

_Head._—Dura mater of a healthy hue; arachnoid studded with small granular bodies; vessels much injected; general hyperæmia of cerebrum and cerebellum; ventricles distended with clear serum, of which we collected four ounces; choroid plexus fully injected. Examining the base of the brain, the anterior and middle lobes of the cerebrum covered by a serous deposite, particularly thick over the optic nerves, from their origin to their departure from the cranium. The left nerve was very thickly coated with the adventitious deposite, and granular bodies of the
size of pin heads, with apparently an approach to ulceration. Around the head of the spinal column much serous effusion.

Remarks.—This case shows how insidious, in many instances, are the attacks of brain disease. Its onset is unnoticed; its march is veiled in obscurity; its progress is slow, but not the less sure. The mine is sprung before we are conscious of its existence, and we are but too often only then called upon when nothing remains for us, but to witness the ravages which we cannot repair. Every physician of experience, must have witnessed cases like the following. The child for a week will complain so little, as hardly to attract any attention; he is then said to be dull and not well; he prefers lying in bed to getting up; is inclined to sleep more than usual; his appetite may be good, his bowels constive or regular, his tongue clean, his pulse regular, with perhaps a little fever at night. As the case progresses, his sleep is disturbed by dreams, he screams out, wakes up in affright, he is unwilling to be raised from the horizontal position; screams when this is attempted.

These symptoms continue a longer or shorter time. The parents are unwilling to believe that a child can be ill who has so little fever, has so good an appetite, &c. &c., till they are aroused from their fancied security by the sudden occurrence of convulsions, delirium, or coma, but too often the indices of fatal lesions.

Such cases will very often baffle the most judicious and well directed efforts; irreparable mischief has resulted before we are called in most instances. In others, we find something peculiarly intractable in the subacute and chronic irritations of the brain and its membranes, even if seen before this mischief has accrued.

Proofs of chronic irritation are very evident, in the inspection of the case under consideration. The large amount of fluid in the ventricles, more than four ounces; the serous deposite and granular bodies upon the membranes, may be adduced to support this conclusion. I believe it had its origin in the eruptive disease, which she suffered in the previous winter.


Jasper Cox, set. 12 months, attacked with cholera infantum, June 16, 1833; took medicine and went into the country; returned early in July quite well. July 19, had a return of diarrhoea; relieved by medicine. July 28, a severe attack; his
gums were lanced; he took small doses of calomel:—he went into the country the 1st of August. He was better for some days, but the symptoms again returned, and he was seen by a neighboring physician, who treated him with active cathartics, from which he derived no benefit. Aug. 24th, he got back to town. On the 25th, I found him much emaciated, skin hot, pulse quick and tense, tongue scarlet of a scalded appearance; appetite bad, stomach rejects the little food which is swallowed, bowels loose, stools greenish, much jactitation, watchfulness, cannot hold up his head.

Rp. eight leeches to the epigastrium; grs. 2 super carb. soda, in a little rice water every hour or two.

25th. Has not vomited since he was leeched; slept well last night; holds up his head and is lively; continue the soda; let him have a tepid bath night and morning.

26th. Was allowed to eat some fresh beef and panada last night, because he saw and wanted it; vomiting has returned, bowels very loose, discharges yellow, great distress and jactitation; directed Hyd. cum creta, grs. 2; sulph. morphiH, gr. 1-8; and super carb. soda, gr. 1; every two hours, leeches and fomentations to the abdomen. 8 o'clock, P.M. he became so restless the leeches could not be applied. He suffers great distress; throws his arms upwards, his head back, screams, sucks and drinks greedily; pulse quick, head hot. Ordered warmth to the feet and evaporating lotions to the scalp.

27th. Died at 3, A.M.

Inspection, ten hours after death, by Dr. Warner.

Head.—Anterior lobes covered by a coagulated serous exudation between the arachnoid and pia mater; aspect of the brain pale and watery; laying open the ventricles, about two drachms of limpid fluid escaped; floor of the ventricles pale; foramen of monro open; diameter one-fourth of an inch; bathing the base of the brain, and head of spinal column, several drachms of serum.

Abdomen.—Stomach filled with fluid; mucous membrane soft, greyish, besprinkled with minute stellated spots; liver a little paler than usual; gall bladder filled with healthy bile. Smaller bowels. Mucous coat covered with enlarged glands, presenting a granular appearance; general hyperæmia of the mucous coat, evidenced by pink blush, in many places hyperæmia with inflammation of all the coats of the intestine; much healthy looking yellow faecal matter in the smaller bowels. Large bowels,
empty; peritoneal coat pale; mucous surface covered by innumerable small ulcerations.

Remarks.—The cerebral lesion was doubtless the immediate cause of death in this case, and this may be asserted of ninetenths of those cases of cholera infantum which prove fatal. The extreme susceptibility of the nervous centres in children to impressions primarily made upon distant organs, and their proneness to become implicated in all the diseases of these organs, are unquestionably reasons why cerebral and spinal disease is more common among children, and why, cæteris paribus, some of their diseases are more fatal. Indigestible food in the stomach, or worms in the bowels, will induce strong convulsions, which may be instantly cured by removing the irritation in the stomach or bowels within a short time; but if we suffer the cause to continue until lesion in the brain and spinal cord has usurped the place of functional disturbance, its removal then, will fail to bring about the same happy result; the secondary and sympathetic malady has now become the chief object of solicitude and care. Very many cases of hydrocephalus, so called, owe their origin to gastro-intestinal irritation; hence the acknowledged utility of purgatives apart from their antiphlogistic and derivative virtues.

Our case illustrates several interesting pathological facts; viz. the integrity of the liver, and the abnormal condition of the gastro-intestinal mucous membrane in a case of cholera infantum, and that the brain may be remarkably pale and watery though the symptoms seemed to announce great irritation of the organ, confirming the assertions of Andral and others.

Case 5. Arachnitis, Hyperæmia of cerebrum, with effusion of blood, &c. Ramollissement of Cerebellum.

——— Smith, stat. three years, without much previous indisposition, had a convolution, April 4th, 1833. I saw him soon afterward; no excitement of the pulses; skin cool; eyes natural; purge with calomel and jalap.

5th. General excitement; cored pulse; bowels moved; he was bled; continue mercurial purgatives.

6th, 7th, and 8th. Much relieved.

9th. Inclined to sleep continually; is, however, easily roused; tunica adnata injected; bowels torpid; fever moderate; give him a drop of croton oil, with oleum ricini, every two hours, till he is well purged.

10th. Symptoms worse; adnata very much injected; lies in
Thomas' Pathological Contributions.

a comatose state, with his eyes half open. He continued in this condition, with very little alteration, for five days, when the adnata began to clear up, and the coma to disappear. All this time his bowels were very torpid, requiring the daily exhibition of croton oil, no other cathartic made any impression. His temples were leached; his head constantly moistened with cold, evaporating lotions; his ankles blistered, &c.

19th. He is well enough to sit up; his bowels are regular; his appetite is good, and he sleeps well at night: give him quinine thrice a day.

21st. A scarlet eruption, resembling scarlatina covered his whole surface; he had slight fever. In a few days his extremities became edematous; a large tumor arose behind the left mastoid process, which quickly ran on to suppuration. He took calomel, squill and digitalis. All this while he slept at night; his bowels were easily moved; his urine abundant. There was no marked evidence of cerebral disease until the 28th, when he had a strong general convulsion, with great distortion of his features; respiratory function much embarrassed. After this, he failed very fast, the spasms recurring at short intervals, till he died on the 29th.

Inspection by Dr. A. L. Warner.

Arachnoid surface of the dura mater highly vascular, slight effusion in the arachnoid sac; vessels of pia mater turged, the minutest terminations well injected. Brain,—substance firm, when cut into presenting a roseate hue, minute red points following each stroke of the knife; on the posterior surface of the left hemisphere of the cerebrum a circumscribed spot of effused blood an inch in diameter; lateral ventricles containing four drachms of fluid. Choroid plexus of a bright vermilion hue. Cerebellum,—right lobe natural consistence but unusually vascular, left lobe, extensive ramollissement; serous effusion at the base of the brain and at the head of the spinal column.

Remarks.—The recovery, partial and temporary as the event proved it to be, from the state of profound cerebral embarrass-ment under which this patient labored for a week, was entirely unexpected, and can only be explained on the hypothesis, that at the time this amendment took place, the capillaries of the inflamed arachnoid relieved themselves by the serous effusion found on dissection. That this effusion could not have been a consequence of the last attacks seems evident from the state of distension in which the capillaries were found, since effusion almost always relieves this distension. To what degree, lesion
of the brain and its membranes may proceed and recoveries still take place, it is impossible to decide, but that they do take place after some serous effusion, we are not permitted to doubt, especially if the fluid have been slowly poured out. Under this condition of things, however, the organ is peculiarly susceptible of irritation, and its blood vessels prone to receive their former excitement, hence these cases most frequently result as the one described above. The occurrence of the abscess behind the mastoid process of the temporal bone immediately opposite the ramollissement of the cerebellum is interesting as a product of vicious irritation, it was so esteemed by me before the inspection, as I had witnessed something very similar in a case which I treated in 1827, a sketch of which I will offer.

**Case 6. Abscess of the brain, corresponding abscess of the integuments.**

Sept. 22, 1827. Daniel Howard, a robust negro aged 22 years, was seized with a violent and deep seated pain above the right eye; his pulse was full, strong and hard. I bled him largely, to syncope, with some relief, administered active purgatives saw him again the same day, the pain had returned, bled him to faintness.

23d. Not so much pain; continue the purgatives.

24th. Pain in the head aggravated; it continues fixed in the same locality; the patient says that he is sure he has a gathering in his head; he was again bled largely, and a blister applied to the neck.

25th. Thinks himself a little better, medicines continued.

26th. Distressing pain, corded pulse, he was again bled, the cathartics operated freely.

27th. A tumour made its appearance on the forehead, two inches above the right eyebrow, his headache continued with unabated violence.

28th and 29th. Symptoms much the same.

30th. Seized with convulsions, face much distorted, delirium; until this time his intellect had been but slightly disturbed.

Oct. 1st. He died in the evening.

**Inspection** by Mr. C. Jones, before Drs. Wright and Buckler of the city.

**Head.—**Externally there is a large tumor above the right eyebrow. On cutting into it, some fetid pus escaped; the floor of the abscess was an inch in diameter, and was formed by the denuded os frontis; the ulcerated edges of the pericranium floating in
its cavity; raising the skull cap, its internal surface opposite the abscess, denuded of dura mater to a like extent; directly beneath this separated portion of dura mater, a large abscess extending deep into the anterior lobe of the cerebrum, containing several ounces of pus in a defined cavity; around the abscess evidences of inflammation. The dissection having terminated here, I am unable to say what was the condition of the rest of the brain.

Remarks.—The subject of this case, received a severe blow upon the back of his head with the handle of an axe, three years previous to this attack. He was knocked down and very much stunned, did not recover from the immediate effects of the blow for some time, and always afterwards was subject to headache.

Might not this abscess have been produced by the blow, and have continued in an indolent condition up to the time of the last attack. That it was not a very recent affair seems shewn by the existence of a circumscribed cavity and its cyst. Andral remarks, "that abscesses of considerable size, contained in a distinct membrane may exist in the brain, without producing any symptoms to betray the fact; so that it is not until after death that we discover the existence of a morbid change in the organ. However, after the nervous substance around an encysted abscess has continued for a long time sound, it may at last take on a state of irritation, hyperæmia, and ramollissement; and we then observe various symptoms which cannot be attributed to the abscess itself, the nature of the cyst proving that it existed long before their appearance, so that we can only refer them to the new process of irritation set up around the abscess.

Of the origin of the external abscess, I have expressed my opinion in the remarks appended to the case preceding.


Richard McKay, aged, 3 years, large head, usually robust health, except an occasional earache.

March 7, 1833. Has vomited every thing he has swallowed this morning, bowels open from oil, pulse slow, surface cool, head rather hot, constant dozing or heavy sleep; directed a sinapism to the epigastrium, with 2 grs. calomel and 5 grs. magnesia every second hour.

8th. Vomiting relieved, some fever, heaviness continues, takes very little notice, tenderness of upper cervical vertebrae, is roused by pressure upon them, bowels sluggish; let him be cupped
on the neck; give him salts and magnesia every two hours till he is freely purged.

9th. The intellect more clear yesterday after the cupping, this morning is much the same. 6 o'clock, P. M. Disposition to stupor increased, scalp hot, pulse languid; cup the temples, evaporating lotion to the head, warmth to the feet, continue saline cathartics.

10th. Much better, is up and playing, tongue which he now puts out for the first time, coated with thick white lymph, bowels open; continue the purgative.

11th. 1 o'clock, A. M. Was feverish last night with some cough, slept well till 12 o'clock, when his mother was aroused by his having a fit; he has now spasms of the extremities, a throwing upwards of his arms, hands clenched, ineffectual efforts to scream; paroxysms of this sort occur every fifteen minutes, eyes closed, dilated pupils, pulse feeble, skin pale, his bowels evacuated twice during the night, green discharges; he is not able to swallow. Apply a sinapism to each ankle to be followed by blisters, cold lotions to the head, hot bricks to the feet. 10 A.M. Spasms and efforts to scream continue, in the interval he lies in a stupor, respiration stertorous, sometimes intermittent, sometimes rattling, surface pale, eyes closed, pupils exceedingly dilated, adnata a little injected, apparent insensibility to impressions, pulse very feeble, he seemed to be dying, a sinapism to epigastrium, hot spirituous fomentations to the feet. 1 P. M. Condition improved, moves his lips when they are moistened and can swallow, spasms do not so frequently occur, blisters have drawn; give him of calomel and ginger, each a grain every hour. 10 P.M. Cheeks flushed, pulse quicker and freer; a dose of oil, continue the powders.

12th. Slept naturally three hours, medicines operated freely, dark green stools, spasms gone, asks for water, still some heaviness to the medicine. 1 P.M. Some increase of stupor, bowels not open; give him a stimulating enema, let him take the following: Syrup. Senna, ʒ ij. Pulv. Jalap ʒ ij M. Take two tea spoonsfull every hour. 9 P.M. Better in every respect, bowels well evacuated, stools dark green.

13th. Rested well, bowels free, hears and sees, this morning knows his mother, is very talkative.

14th. Decidedly convalescent.

April 1st. His bodily health is restored, but his intellect is much impaired, he is quite idiotic, lolling his tongue out and staring vacantly about; such has been his condition since the
attack. As his appetite was good and the animal functions well performed,—as there was no fever and he slept well, I contented myself with some general directions about his diet, &c. encouraging his parents to hope that time would bring about a cure. He continued in this state nearly a month. Some improvement manifested itself towards the latter part of April. From this time he gradually improved, and in the month of May recovered entirely; since which he has enjoyed good health up to this time.

Remarks.—This is an instance of recovery from very deep embarrassment and irritation in the nervous centres. I will not pretend to say what was the condition of those organs at the time, since experience has proved that we cannot predict with certainty from the symptoms during life, what pathological changes we shall meet with after death. The result should admonish us never to despair of the recovery of a child, for recoveries not unfrequently happen when we have the least reason to expect them.

Baltimore, December, 1833.

ART. IX. Case in which Shot were discharged from the Urinary bladder. By William Watson, M.D. of Bedford, Pennsylvania—communicated in a letter to Professor N. R. Smith, M.D.

Professor Geddings:

Dear Sir,—The following interesting case has been communicated to me by my intelligent friend, Dr. Wm. Watson, of Bedford. I would venture to suggest that, as these shot (which are now in my possession) have evidently the battered appearance of those which have been discharged from a fowling piece, they probably were swallowed by the patient in the flesh of game which she may have eaten;—that in passing the alimentary canal, they became lodged in some cell or follicle, in some portion, probably of the sigmoid flexure of the colon;—that adhesion being established between this portion of the intestine, and the peritoneal covering of the bladder, the shot were conveyed by ulceration into the bladder without entering the general cavity of the abdomen. The symptoms of local and constitutional disorder appear to me to confirm this supposition. Your readers are aware that analogous cases are on record.

Yours, &c. N. R. Smith.

"I will relate, in a very few words, a case which occurred in a visitor to the Bedford Springs, in the last summer, of so
extraordinary a character, that I fear it will be considered in-
credible.

"Mrs. M. a lady who had been married but a few days, with
her husband, came to the springs probably for amusement and
change of scene. She had had a slight bilious attack before she
left her home, but had recovered and was quite well when she
came to the springs. Two or three days subsequent to her
arrival, she had a recurrence of bilious symptoms assuming the
form of remittent fever. The attack was mild in character, and
readily yielded to the common means of prescription; but on the
third day of her attack, she was seized with severe pain in the
right hypochondria extending towards the navel, and back to-
wards the kidney—the pain she said resembled colic. I was
out of town at the time, and did not see her for some hours
after its occurrence. She was relieved by means of hot ap-
lications made externally. The pain returned in the night
with the desire of frequent micturition; she was finally reliev-
ed not only of this last symptom but of the abdominal pain by a
discharge of what she called gravel, followed by a copious flow
of urine. She informed me of this fact in the morning, when I
visited her—and showed me the gravel which she had passed;
she said the servant girl had detected it in the chamber pot,
on emptying it. She said there were five or six other particles
which had been lost—on examining those particles, I found they
were shot. The fact was so incredible that I made the strictest
examination, both of the servant girl and the patient. The latter
informed me, that she certainly passed some substance which
afforded her instant relief—and the girl said that she found the
particles in the pot when emptying it, and that when she brought
the vessel in before it had been used at the time of this dis-
charge, nothing was in it. The landlady, the girl, and the patient
had the fullest confidence, that what they gave me, was discharged
by the patient. I enclose you the shot said to have been dis-
charged. When given to me the shot were less smooth than
round, and I did not immediately apprehend them to be shot,
though they appeared to be a strange species of gravel; and
when I returned home, I struck one of the particles with a
small hammer, and found it to be shot. I immediately returned
to the patient, and resumed my inquiries and examinations—I
was again assured that the patient had passed the shot, with en-
tire relief, but on closely questioning her, there seemed to be
some doubt whether the discharge was from the urethra or
anus, faecal matter having been passed when emptying the blad-
The patient had no recollection of having ever swallowed shot. She had felt a similar pain some years before, which passed off, without remedial means. I do not doubt that the patient and attendants believed the statement made to me. I submit to you what I believe to be a fact, without any reflections on the subject, being incompetent to account for an occurrence out of the usual course of things."
REVIEW.


Observations on the characters and seat of Hysteria and Hypochondriasis, and on the analogy between these two diseases, by I. L. BRACHET, &c.

Whoever can retrace the movements of an ingenious mind, with a spirit disengaged from, and unembarrassed by, "the hebetating obliquities of preconception," may derive instruction from a fair perusal of this candid and philosophical investigation of hysteria and hypochondriasis. It is written in a manly style, freed from the jargon of hypothesis, and calculated to meet the spirit of the age; and as it is the only modern work of any originality on the subject of which it treats, and is shut out from a great number of the profession, from the circumstance of its being couched in a foreign language, we purpose making free excerpts from the same in the prosecution of our subject; a subject, unfortunately, as yet, but little known, and which still continues an "opprobrium medicorum."

It was to remove this stain from our profession—to collect an intelligible summary from the chaos of false scientific riches on this subject, that the Royal Medical Society of Bordeaux, incited by that laudable spirit of inquiry, so peculiar to the nineteenth century, made an appeal to its medical community, to furnish a comparative examination of the different promulgated opinions on the nature, the seat, the etiology, the symptomatology, the prognostics, and the therapeutics of hysteria and hypochondriasis, which would aid in deciding either upon the identity or difference of these two diseases. The appeal proves how much that society perceived the importance of collecting all possible knowledge on the subject of hysteria and hypochondriasis;—diseases, which are every day becoming more frequent,
and which occasion, independent of the ordinary sufferings, many consecutive disorders, which too often prove an obstacle to the accomplishment of generation. It was to meet this appeal, that M. Brachet undertook the work we have just alluded to, which he has very properly divided, according to the manner in which the question was proposed, into three parts or heads. Nothing can be more fair, more characteristic of a zealous desire to obtain the truth—the whole truth, than the mode of investigation pursued by our author. He not only exposes all the promulgated opinions on the nature, &c. of hysteria and hypochondriasis, thoroughly and separately, but also in his third division, he examines these different opinions comparatively and analogically, and finally draws his own conclusions, and decides in favour of their non-identity. We hail this method of investigating diseases, as one of the many signs, that surround us, of the commencement of a new era in the science of medicine. When men of sense and science, honoured men too, with no other desire than to serve as volunteers to the line of march now taken up by medicine, laugh at the obstinacy of bigots, and the sneers of those, who, standing still themselves, would have all others stand still also—where this is seen and done, the prospect is fair, and encouraging for truth. But we must confine ourselves, at present, to the subject immediately before us, and lay before our readers, an abstract of those portions of M. Brachet’s work, which, we think will prove most generally useful and acceptable. We will at once, therefore, plunge “in medias res,” and commence our translations from that part of the work,—truly the most important—which treats of the analogy and difference of hysteria and hypochondriasis;—after which, we purpose making such therapeutic and conclusive remarks, as we deem important, and which our own experience and reading have impressed upon us.

And first of the nature and seat of hysteria. “We recognize,” says our author, “with Bichat, two orders of vital phenomena: the one organic and nutritive;—the other animal and of relation. All the acts, which are performed in the animal economy, are referrible in their dernier analysis to one of these two orders; and are all under the influence of two nervous systems—the cerebral and ganglionic.” “The cerebral nervous system presides over all the intellectual, sensorial acts; in a word, over all, which relates to the spring of animal life. The ganglionic system presides over the secretions, exhalations, &c. and whatever depends upon organic life. In the complicated organs, as the
lungs and the stomach, each system exercises its influence on determined acts. In the lungs, for example, the cerebral system presides over the sensation of the need to respire—the contraction of the bronchial tubes—and the mechanism of respiration; and by consequence over coughing, expectoration, &c. The ganglionic system conduces to nutrition, the capillary circulation, the transformation of chyle to red blood, and to the pulmonary exhalation and secretion. In the stomach, the sensations of hunger, and satiety, and the contractions of this viscus, acknowledge the influence of the cerebral system; whilst the gastric secretions and exhalations, absorption, and nutrition, are performed under the influence of the ganglionic system.

"If, in seeking by autopsy for the diseased organ, we expect to find the seat and nature of hysteria, we deceive ourselves greatly. Since the commencement of the researches in pathological anatomy, a great number of supposed facts have been collected.—Harvey has seen a deposit of a sour humor in the ovaries cause hysteria.—Vesalius has found ovaries larger than balls, and filled sometimes with a yellow humor, and at other times with a foetid liquor of divers colors. Riolanus found one which was indurated, and larger than the fist. Biunengerus has seen the ovaries, the fallopian tubes, and the spermatic vessels excessively distended, and stuffed with a thick, white, and slightly undulated humor, resembling a steatoma of a half pound weight. Mangetus is said to have found both the uterus, and the testicles filled with a corrupted seminal matter, similar tohardened curdled milk. Diemerbroeck has always recognized around the uterus, a kind of tumor filled with an eruginous or yellow liquor. After having established the influence, that the organs can exercise, Pujol says, that we have always the means of assuring ourselves, that hysterical affections are the produce and sympathetic effect of the chronic inflammations of the uterus and its appendages, because the parts are always engorged, and often abscessed or ulcerated. He rejects after this, hysteria 'sine materia,' or purely nervous.

"We read, in the memoirs of Trevoux, a case of hysteria, which was caused by the presence of worms in the intestines. The author who is mostly consulted, when positive researches, without prepossession, or any influence, in pathological anatomy are desired, Morgagni, has once found an aneurismal dilatation at the origin of the aorta; at another time, he found the stomach enormously distended, and descending below the umbilicus, which Valsalva had before seen. He has, for the most part, en-
countered some alteration in the genital organs; either in the ovaries, which were hard, scirrhous, and disorganized, or in the uterus, wherein existed tubercles, ulcers, &c. Pomme, who makes the nerves end upon the surfaces of the mucous membranes, believes he has seen a proof of their shrivelling up, in the expulsion of many false membranes, formed in the stomach, the intestines, and bladder, which was the result of inflammation in these organs. He has also recognized obstructions of the viscera, of the uterus, ovaries, &c. He likewise cites M. Compte, who saw an engorgement of the mammæ cause hysteria. Lieutaud, one of the founders of pathological anatomy, after having reflected upon all the facts of alteration, that he has collected from authors, or, that he has observed himself, expresses himself thus:—'Hysteria manifests itself to us in the ovaries, by engorgements of every kind: we find there a liquor, limpid, yellowish or black, muddy or purulent; also, seaceous, caseous, and chalky matters, and sometimes hair; their substance has appeared scirrhous, and their surface charged with tuberosities, hydatids, and other incysted tumors, from the size of a pea, to that of the fist. We have again seen the uterus, and the spermatic tubes and vessels, containing, likewise, with the ovaries, a whitish matter of different consistencies. The orifice of the uterus has been found closed by a cicatrix, which was the consequence of laceration after difficult parturition. The stomach, moreover, has been found displaced, and its base drawn down towards the pelvis; a prodigious dilatation of the duodenum, by a strangulation, which was at the end of this bowel, has also been perceived; likewise obstructions in the colon and rectum, by a whitish, stercoral, and dry matter; scirrhous in the mesentery; gangrene of the pancreas, and epiploon, which forms sometimes hernia, &c. &c. M. Reynaud has seen hysteria cured by Professor Boyer, by the extirpation of a little tumor from above the bosom. 'From all these facts,' says M. Villermauy, 'we draw the following consequences: 1st, Hysteria, for the most part, exists without any change, perceptible to our senses, in the genital organs of the woman; 2nd, it can even prolong itself for a very long period, without bringing on any alteration in these viscera; 3rd, it rarely determines organic lesions: alterations of the tissue of the uterus, and its appendages are then the most frequent; 4th, if these exist primitively, hysteria is sometimes added thereto, or it is the result: this circumstance is observed very rarely; 5th, these two diseases—this
neurosis and organic lesion of the uterus, can be united: it is
this which constitutes a complication."

"After these facts, and a great many others, which are but
vaguely expressed, can we draw any positive conclusion? The
first reflection, which presents itself, is, that neither the genital
organs, nor the stomach, nor the liver, nor the spleen, &c., can
be exclusively the seat of hysteria. Does this disease, then,
reside in all the organs together, or indistinctly in each one of
them in particular? or does it reside in the apparatus common to
all? Let us examine how each alteration acts on the economy,
and the conclusion will be easy. If hysteria had its seat in all
the organs at a time, they would all be constantly diseased, and
their functions would be deranged; but most frequently no organ
is altered, and all the functions are executed freely: this suppo-
sition then is false and erroneous. If only one organ was the
exclusive seat of the disease, it would necessarily follow, that
we should constantly find the same organ diseased; but we have
seen that the greater part of the organs present some alterations:
this opinion is then inadmissible. We can no longer suppose
that this is the same kind of alteration, which cancer, scirrhus,
inflammation, &c., would occasion; since we have seen that no-	hing is more variable than these different alterations. To ap-
preciate well the tissue or system, which is the seat of hysteria,
and its mode of affection, it is necessary to find in what manner
the alterations can act in the production of this disease. Let us
recollect, at first, that each organ, independent of its proper tis-
sue, is composed of the following general tissues: nerves, san-
guineous and lymphatic vessels, and cellular tissue. Since no
isolated organ can be the seat of hysteria, it ought necessarily to
consist in one of these tissues. They are all equally distributed
in the economy, and concur together in the structure of organs.
All can be injured; but which can be so injured, as to produce
hysteric phenomena? If it was the cellular tissue, the malady
would be more simple, inasmuch as it would be more abundant,
or altered in the points, where it is generously distributed. But
it is altogether otherwise; persons who present considerable en-
bonpoint, and especially the enbonpoint of the phlegmatic kind,
are rarely attacked with hysteria. Besides, the organs, whose
alterations cause most frequently hysteria, as the uterus, the
ovaries, the liver, the spleen, the gastric and intestinal mucous
membrane, are almost deprived of this system; whilst the par-
cels of cellular tissue, which occupy the flanks, the pelvis, and
subcutaneous regions, can be diseased, and a long time so, with-
out ever causing hysteria. The disease cannot originate in the
lymphatic vessels, for the temperament, in which this system
predomina tes, is the least exposed to hysteria; and the vessels,
and especially the ganglions, can be, and are very often engorged,
infiamned, and suppured, as is seen among the scrofulous, with-
out developing any hysteric phenomena. The sanguineous ves-
sels can neither be the organs of transmission, for the sanguine
temperament but little disposes to hysteria, and the acute in-
flammations, which are proper thereto, are rarely the cause.
By themselves, the vessels can never transmit to any distance a
disease: their affections are always local. They can be altered,
deranged, destroyed, in a thousand manners; but the evil is
always in the point affected, or if it spreads itself, it is gradu-
ally, and by continuity of tissue, as occurs with all the organs,
and all the tissues. But such is not the case with the blood; it
can be changed in a diseased organ, and carry to a distance its
disease and influence. This humoral theory, admissible in other
diseases, is not so in hysteria. For, if a deleterious principle
were introduced into the blood, and vitiated the mass, it would ex-
ercise a constant and uniform influence on the organs and tissues.
What this altered liquid would produce to-day, it would produce
to-morrow, and every instant; because the contact being perpe-
tual, it would produce continually the same effects. But hysteric
paroxysms do not re-appear for weeks, months, years; some-
times even, there occurs but one, and generally their apposition
is sudden, without being preceded or accompanied by any alte-
ration, either organic or sanguineous.

"In fine, are the nerves the means of transmission, or rather
of re-action of the diseased parts upon the economy, producing
hysteria? If we consider that the nerves are the organs of sen-
sibility and contractile excitability, and that in being distributed
to all parts of the body, they keep up this harmony of func-
tions, this consensus of being bound in solido: (which is, that
when one organ suffers, all the others suffer also,) we shall be
disposed to regard them as the means of transmission. We
shall believe it the more, if we consider that the principal phe-
nomena are acts dependent more or less directly on nervous
influence: such are the spasms, convulsive contractions, sensa-
tions of the boll, ('globus hystericus,' ) strangulation, suffocation,
pains, weakness, &c. The nerves alone can produce such phe-
nomena, because they alone are the incite agents. Thus,
whatever may be the organ diseased,—uterus, spleen, stomach,
&c., the nerves, which are distributed thereon, receive a mor-
bid modification which they reflect on all the other organs, or parts, either through their anastomoses, or through the mediation of the brain and spinal marrow, when this mediation is necessary to establish the circle of communication. Let us suppose the point of departure in the uterus, and the sensation of the antiperistaltic ball, which I will call ascending spasm of the œsophagus and intestines, because there is no ball; the uterine nerves are affected in the diseased organ; as they are furnished by the hypogastric plexus, which itself receives many sacral filaments, they transmit the impression of the pain and suffering, that they have received, first to this plexus, then gradually to the mesenteric and gastric plexus, and in fine, to the eighth pair of nerves, and by this means to the contractile fibres of the digestive canal. The communication can also be made through the vertebral column, through the branches it sends to the organs of the abdomen. It can much better operate thus, as each crisis, the least violent, is accompanied with convulsions in the members; a phenomena to which the spinal marrow is indispensable. Whatever other communication therefore exists, it is by the nervous system that it is effected; it is then by this system, that the disease re-acts upon the diseased uterus. This system, then, should be the seat of the disease, ('hyste-ria') since it is the veritable and sole motive or agent. But this consequence would be anticipated, because the general expression of the nervous system and nervous affection that it would thus bring in, cannot be passed over without an examination: it would leave too much vague, and would not conduct to the solution of the question. In fact, in place of one nervous system, there are two, each one of which presides over an order of functions, very distinct. To which of these two appertains the affection? Or does is belong to both?"

To decide this point, on which depends the knowledge of the seat of the disease, and the solution of the question, our author selects four simple cases, from the observation of which, we can better appreciate the nature of hysteria, than from all the bizar- res phenomena, that have been collected. In the first case, our author shews that all the phenomena are the result of a troubled and excited nervous action, under the influence of a cerebral affection. In the second, the same derangement of nervous action is manifested under the influence of uterine excitement. In the third, the phenomena are attributable to a gastric excitement; and in the fourth, there is evidently an idiopathic nervous excitement, independent of every organic excitement, and such.
as presents itself sometimes, when, by the prolonged succession of many crises, the nervous system preserves the habit, and produces, as Pujol says, paroxysms without any new excitement. We can, therefore, no longer doubt but that the nervous system is the seat of hysteria; the fact is evident and undeniable.

"It now rests," continues our author, "to ascertain which of the two nervous systems is the seat of the malady. Is it the cerebral? or is it the ganglionic? Pathological anatomy is mute; all that it does say is hypothetical, and too often contradicted by experience to merit confidence. Deprived of this resource, we can only arrive at a knowledge of the diseased system, by analyzing the injured functions. This investigation, truly physiological, is equally as precious as pathological anatomy, when it is made with severity, and in a manner regarding all the phenomena without distinction, and all the agents; and especially when we take the precaution thoroughly to isolate the disease from all its complications.

"All the phenomena of hysteria are acts dependent on the influence of the cerebral nervous system. Sensations of pain, of the ball, of strangulation, suffocation, spasmodic contraction of the members, of the eyes, jaw, chest, abdomen, &c. all are directed by the cerebral nerves. It is therefore in this system, that the malady is lodged: this is its seat. We have shewn that the brain is foreign thereto, at least in the ordinary cases. Consequently, the nerves alone are affected: the fourth case proves this incontestably. If we read the interesting fact, that M. Prus has consigned to the 'Journal général de Mèdecine, Janvier, 1829,' we shall therein see a stronger proof of this opinion. Hysteria has never affected all the nerves at the same time, but it has run through, successively and alternately, the eighth pair, the fifth pair, the sciatic, &c. This is one of the most precious facts we possess, because it analyses, in a measure, the malady, by locating it in a partial manner. If the seat of hysteria be shewn to us, yet it is not so with its nature. Is it an inflammation, an irritation, an engorgement, a scirrhus, or a cancer? This is what it is impossible to decide. Nevertheless, it is observable that it is not inflammation, which causes hysteria; for the uterus, the most frequent point of departure of the malady, does not occasion it during the acute period of an acute metrite, but after the inflammatory phenomena are dissipated, and there remains only a state of nervous exctitation. If we consider, that the engorgements, and the scirrhus of the liver,—that the frequent cancers of the stomach and uterus, go slowly through
their periods, and never, or rarely cause hysteria, we will not
find its nature in these kinds of alterations. If by irritation,
we understand every kind of excitement carried to the nervous
system, we will reject again this mode of affection; for a thou-
sand and physical, morbid, hygienic, and moral irritations take place,
before one single hysterical paroxysm is produced. But if we
consider that all the phenomena of the disease are the result of
a perverted and augmented action of the nervous system, whose
cause has always acted, at least primitively, on a part of this
system, by producing in it some excitation, we will readily ad-
mit the excitation to be the essential cause, or rather, the na-
ture of hysteria. It will then, be necessary to specialize it,
and to admit a particular excitation, suí generis, of the nervous
system, whether it proceeds from the mode of excitation, or
from a disposition of the nervous system, which we will call,
if it is wished, irritability, or susceptibility, &c. For if we
admit excitation, in a vague manner, as the first cause, we will
be in error; because, in this hypothesis, every excitation should
cause hysteria, and this is not the case. It is necessary then,
under all circumstances, either that the excitation be special, or
that it meet with a particular disposition, an equally special
aptitude, in the nervous system. Whatever there may be in
these subtile distinctions, still it remains, that hysteria has its
seat in the nervous cerebral system, and that it consists in a par-
ticular mode of excitation, and perversion of this system. I do
not believe it possible to find by researches, what nerves are
more specially affected, because all appear equally so. If the
nerve of the eighth pair acts a much greater part in the disease,
it is rather on account of the number of organs to which it is
distributed, and to the importance of their functions, than to its
greater frequency, or speciality of affection. In fact, the eyes,
the hands, &c. are as often agitated as the larynx, œsophagus,
stomach, and intestines; but we pay very little attention to the
first, because they only enjoy but a secondary roll in general
life; whilst the second enjoy a more important roll, and the le-
sion of their functions is very sensible, and compromises readily
the days of the patient. Nevertheless it is possible, that this
pair of nerves is oftener and more powerfully affected.

"We now perceive how false the denomination, by which the
disease is designated. Many authors have already raised their
voices against it, so that all minds are now disposed to acknow-
ledge the error. Thus, the word Hystera signifying malady of
the uterus, ought to be obliterated from the medical nomenclat-
ture, because it presents a false idea. The word *cerebropathy*,
is not more exact, since it indicates an affection of the brain,
and this viscus cannot be regarded as the seat of the disease.
We want an expression, which indicates a nervous affection, as
the nerves are diseased. We have the word *neuropathy*, creat-
ed by Flemyng in his Latin poem of this name, and adopted by
many authors, and even by Barthez. But this expression, only
signifying a nervous affection, is too vague; it can be applied to
every kind of affection, as well as that which occupies us. We
should therefore add an epithet, which can characterize the
disease, and say *spasmodic* neuropathy, since the reigning
character of hysteria consists in spasms and convulsive move-
ments: this denomination would indicate in fact the seat and na-
ture of the affection. But why two words, if we can abridge
them, by uniting them into one alone, which would express at
once the two objects? Why should we not say *neurospasm*, a
word, whose etymology is easy to be seen, and whose significa-
tion is very clear: *viz.*, a spasmodic nervous affection? We can,
therefore, advantageously substitute this expression for all the
others, since it alone indicates, at once, the seat and nature of
the malady; a circumstance, which we should never lose sight of,
whenever it becomes necessary to create a new word.—
There rests yet a little difficulty. This denomination does not
designate which is the nervous system affected; so that it can
yet be demanded, whether it be the cerebral, or ganglionic.
To avoid this inconvenience, and to render the denomination as
just as possible, it is essential to add the epithet, *Cerebral*. In
this manner we will have the definitive expression, *Cerebral
neurospasm*, or spasmodic affection of the cerebral nerves. The
epithet, *cerebral*, cannot cause *amphibiology*; for, if we had in
view the spasms caused by an affection in the brain, we would
have said *cerebro*, or, what would have been better, *encephalo-
spasm*, a denomination, which may, in future, suit for many
cases. In proportion to the progress and perfectioning of the
sciences, we ought likewise to reform and perfectonate their
language. This is the only means of classing ideas and facts
without confusion."

In this opinion, we most thoroughly and cordially coincide
with our author. We have long been impressed with the idea,
that most of the medical polemics have arisen merely from a di-
versity of opinion, as respects the accepted meaning of doubtful
terms, whereby we often arrive at different conclusions. In
those sciences, which are founded upon universally accepted
truths, and which exclude fallacious sophistry, and bewildering transcendentalisms, we perceive but inconsiderable dispute; whereas in our profession, we encounter continually such an endless and perplexing logomachy, that it is impossible to bring our discussions to an issue. How much more philosophical and conducive to the true interests of science, would it then be, if we were to imitate the wisdom of the mathematicians in the definition of our words and terms, and substitute perspicuous, authenticated, and well derivated definitions as the basis of our investigations. "Loquendum ut vulgus, sentiendum ut sapientes," is a maxim, which cannot be strictly followed in medical discussions, for, "certain it is," says Bacon, "that words, as a Tartar's bow, do shoot back upon the understanding of the wisest, and mightily entangle and pervert the judgment." But, again to our subject.—After having thus philosophically and clearly decided on the nature and seat of hysteria, our author goes on with his researches in hypochondriasis. From the details, in which we have just entered in the preceding remarks on hysteria, we can the better dispense with any lengthy quotations on the subject of hypochondriasis; inasmuch as these two diseases have generally been regarded as analogous, and sometimes united, and consequently have been formed on the same model.

"We will not occupy ourselves with humorism," continues our author, "whose despotic influence has been so great, that physicians did not dare to shake off suddenly the yoke, even when they perceived the necessity of studying diseases in the organs. At the present day, it would be losing time to undertake its refutation.

"To combat them, we will oppose the one against the other, all the authors, who have placed the seat of hypochondriasis in the different organs. Those who have fixed it in the stomach, have shewn the impossibility that the liver, the spleen, or the pancreas, &c., can be the seat; by proving, that, most frequently, this affection existed without any lesion of those organs, and that again, these organs were often diseased without causing hypochondriasis. Those, who have consigned to one of the other viscera the principal roll, have combated their antagonists with the same reasons, since in hypochondriasis, the stomach enjoys very often, all possible integrity, and is very often diseased, and a long time so, without causing it. It has been easy to refute the opinion of Stahl on the system of the vena-porta. This circulatory tree only enjoys a passive roll: if it were the means of transmitting the deleterious principles spread
forth in the stomach and intestines, in consequence of bad digestion, or unwholesome aliment, it would always be the means of transmission: the first cause, the seat of the disease, would be in the point where the morbid materials have been prepared.

"From what we have said above, we can dispense with a refutation of the opinions of the Arabians. In fact, if hypochondriasis has no location in any organ in particular, it will not locate itself better in all at once. Why are they not ordinarily all affected? Why, very often, is there but one affected? And, why sometimes none? Although the ideas of hypochondriacs on the subject of their complaints are generally false, and sufficiently bizarre to support the opinion of those, who place the seat of the disease in the brain, the analysis of the morbid phenomena will very soon render it justice. We will content ourselves for the present, by calling to mind, that neither Georget, Willis, nor Fabret, have cited any case of alteration in the brain. Its integrity proves that it does not enjoy the first roll in this malady, and that the phenomena of which it is the agent, are only secondary. If, at an advanced period of the disease, the brain sometimes becomes finally affected, it is in consequence of the length of suffering and its re-action; but we must not confound this sympathetic or secondary effect with primitive nervous lesion. In the opinion, which places the seat of hypochondriasis in the nerves, it is well demonstrated that the morbid acts, are the produce of nervous influence; but it is embarrassed, when it becomes necessary to define, which nervous system is specially affected, and the manner in which it is affected. Hypochondriasis is, without doubt, a nervous disease; but the difficulty instead of being resolved, only recoils. The farther we enter into the developments, I hope they will become more satisfactory.

"To fix our choice in this labyrinth, we will follow the same steps, that we did in hysteria. As the principles of physiology on which the doctrine of hypochondriasis can be based, are the same, we will examine only, 1st. the pathological alterations, which have been found after death; 2d. the nature in action or the facts, and the analysis of the phenomena or morbid acts. The facts in pathological anatomy are not wanting: numerous autopsies have demonstrated many alterations in the organs. But to this time, they have not been of great utility, either because the researches were not made with much method, or rather, because they were directed by a preconceived idea. Thus, for example, he who placed the seat of hypochondriasis in the liver,
sought only for alterations in the liver; he who perceived only a gastrite, regarded only the alterations of the stomach, &c. No systematician has ever wanted facts to support his opinion. Is it then true that pathological anatomy, a science altogether of facts, is not more exact than theories, since there is no one who does not invoke, or does not pretend to draw convincing proofs of his infallibility! Let us review rapidly the alterations, which have been found in the organs, and we then will see what part they have had in hypochondriasis.

"Guarinoni has found, in the body of an hypochondriac, the mesenteric viens totally obstructed, and dilated to such a degree, that he mistook them at first for intestines. Louis Mercutus also found in an hypochondriac the mesariae vessels varicose. Bruner has encountered in the vessels a great quantity of viscous blood. Blasius has recognized in an hypochondriac a considerable volume of liver. James has seen it entirely obstructed. The founder of pathological anatomy, Morgagni, makes mention of a distinguished priest of the order of St. Augustine, whose malady commenced with vomittings of a very varying matter, and a pain in the left hypochondriac region. \textit{Jecur longe maximum inventum est, steatomatibus ple
num, et substantia his interjecta, thymi excociti instar, alba, et lobulosa, sed dura.} The spleen and the pancreas were reduced to a very small volume without disorganization. Willis has seen an engorgement of the spleen, in an academician, cause all the disorders of hypochondriasis. Morgagni mentions the case of a young hypochondriac, who had a tumor in the left side, and died of a vomiting of blood. He only found in the autopsy a vascular engorgement of the spleen. He cites, besides, the observation of a man aged forty-five, whose spleen was engorged, and whose lungs and pleura were greatly diseased. Highmor and Harder report that they have found the pancreas scirrhous and ulcerated. In twenty years, M. Villermay has scarcely encountered two or three individuals, who have not presented, in a sensible manner, a primitive disorder of the stomach and intestines, or of other organs which co-operate in digestion. Professor Broussais has always seen inflammation of the stomach. In one case, the colon presented itself to Rhodius in a scirrhous state. Welchius found it distended with wind, and confounded inferiorly with the rectum in a mass, which made only one body. The autopsy of Fortunatus Maurocrenus, an hemorrhoidal hypochondriac, shewed Morgagni a tumor, which protruded below the umbilicus, and which occupied the superior part of the
small intestines and mesentery. This celebrated author expresses himself thus, on the subject of the opening of the body of Aloysius Ratta, for a long time an hypochondriac. 'In cerebri anfractibus aqua gelatinosa: in ventriculis quoque, et qua oblongata medulla in spinae tubum descendit, aqua fuit, sed pausa utrobique.' 'The viscera of the thoracic and abdominal cavities were sound. It is necessary to remark, that two days before his death, the patient was suddenly seized with a great thirst, delirium, and somnolency. It was only this last disease, which left the cadaveric traces that were found. In the lxi. epist. No. 5, he has found different alterations in the pineal gland and corpus callosum; but the patient was at the same time a maniac. I do not know better how to terminate these citations than by the following summary from Lieutaud:—'We see in almost all the cadavers, engorgements and varicose dilatations in the veins, which contribute to the formation of the portæ. I have found these vessels so enormously dilated, that we might have taken them for intestines. We observe again commonly obstructions, scirrhous, suppuration, purulence, and sphacelus of the liver, spleen, epiploon, and even atraubiliar capsules. We often see stones in the vesicles of the gall bladder. The spleen has appeared more or less swelled, and sometimes monstrous, as much so in its volume as in its appendices; it sometimes presents itself hard and petrified; it has been seen sometimes so small as not to weigh an ounce, and it is even pretended, that it has been found wanting in one subject. It is not doubtful, but that this part is very often attacked; but it is also very certain that it is not so always, and that it has been found often very healthy, although the other parts have been in a very diseased condition; this does not agree with the opinion of those who regard it as the principal focus of this disease. It has been observed in a great number of cases, that the pylorus was scirrhous and strangulated; and that the stomach was extremely dilated and charged with a blackish and foetid matter as in the colon. Anomalous tumors suspended from the mesentery and other parts have been seen in the lower belly; and the pancreas have been seen engorged, or in a state of mortification. The opening of the thorax has shewn the lungs dried up, engorged, or adhering to the neighboring parts; the heart dry and acid, and glued to its pericardium, or with water in the sac; its ventricles containing a blackish thick blood, serous and foetid; also polyapus concretions, ossified valves, abscesses in the auricles, and ossifications and aneurisms of the aorta, &c. The brain, in fine, has presented its vessels engorged
with a black and thick blood; mortifications and suppurations; serous, sanious, and mucous effusions;—varices and tumors in the choroid plexus; ossifications of the dura mater, &c., without mentioning dropsies and other productions, which are attributed to those of which we speak."

"Can we after these facts, establish the seat of hypochondriasis? Nothing is more impossible, if we rely upon the opinion of authors on this subject. In fact one has placed its seat in the liver, another in the stomach, and a third in the spleen, &c. Why should we place the seat of the disease in one organ, sooner than in another, autopsy having made the alterations appear indiscriminately in all? For what reason, for example, should we choose the liver sooner than the stomach or the spleen, since each of the visceræ have been found equally diseased or healthy under many circumstances? If the affection of the liver constituted hypochondriasis, it ought to exist in every case, and never without this disease; nevertheless how many hypochondriacs are there without an affection of the liver, and how many affections of the liver without hypochondriasis! Since no particular viscus can be the seat of hypochondriasis, although it is very often occasioned by a lesion of some of the visceræ, it is necessary to seek how this can produce its development. We will not return to what we have said of general systems in the preceding chapter; for we have there seen, that neither the cellular tissue, nor the lymphatic system, nor the sanguine vessels were the organs of transmission. The nervous system alone is the organ. As there are two nervous systems, and the organs receive from each a great number of filaments, it is indispensably necessary to ascertain, whether the morbid affections act upon one of them only, or upon both at a time. This research alone can conduct us to a just appreciation of the character of the morbid phenomena of hypochondriasis, and unveil to us its seat and mechanism. The question then consists in knowing which nervous system is the agent of its phenomena."

To settle this question, our author selects, as he did in hysteria, two simple and well marked cases in perfect accordance with the observations of every age, and after analyzing thoroughly their nature, he draws his corollaries. The second case, one of simple acute hypochondriasis, is so well marked and defined, that it is extremely easy to perceive the chain of phenomena, and the cause of the disease. The patient was not predisposed to hypochondriasis, but was governed by a passion and gout for his profession. He accidentally received a scratch upon his
foot, which prevented him from attending to his usual occupa-
tions, and soon ennui and sadness became the preludes to his
disease. It would be ridiculous to seek for any other influence
from this wound, more than that which resulted from the obsta-
cle, which prevented him from attending to his accustomed bu-
siness. An active imagination, which constantly experiences
an obstacle to exertion or exercise, from the very opposition,
passes soon to sadness. The encephalon, thus affected in a
permanent manner, re-acts upon the rest of the economy, and
produces the phenomena, which depend upon it; from whence
proceed the series of fantastical sensations, which bring on sad
ideas. At the same time it re-acts upon the functions which are
not in its attributed jurisdictions, and leads on by this sympa-
thetic re-action, the morbid phenomena, which are performed in
the organs under the influence of the ganglionic system. Thus
the stomach first testifies this re-action; from the loss of appetite,
which depends, or should depend, upon the brain, there are ad-
ded flatulencies and borborygmi. The circulation, the secretions,
and nutrition soon experience the cerebral influence. But these
phenomena are consecutive to the cerebral affection, which was
primary, and which has re-acted on all the other organs or vis-
cera, in producing the phenomena of hypochondriasis. They
present the two orders of morbid actions, the one by the cere-
bral nervous system, and the other by the ganglionic. This
case, therefore, is of great importance, inasmuch as it proves the
division between the cerebral and ganglionic systems, and that
the primary cause of the disease was derived from the brain.
It also proves that the stomach cannot be the exclusive seat of
the disease, nor the unique cause of its phenomena. To these
cases, our author goes on to remark, that, he could add a great
many others, but as these are perfectly in accordance with the
observations of every age, they will suffice to assist in arriving
at the end proposed.

"Of what importance then," we would ask, with our author,
"is it to consider or to furnish new facts of hypochondriasis oc-
casioned by affections of the spleen, mesentery, pancreas, &c.? We
find a sufficient number among the authors. Of what im-
portance, again, to trace out some bizarres, and extraordinary
phenomena? They will teach us nothing, because they will
be always morbid acts dependent upon one of the nervous sys-
tems. Thus, the analysis of the opinions and researches of the
authors, in accordance with the observations of nature, permit
us, first, to regard hypochondriasis as not having its seat in any
of the principal organs of the economy, brain, liver, stomach, spleen, &c., at least at its debut, and for a long time after; second, to place its seat in the nerves, since all the morbid acts are performed under their influence; third, to regard the two nervous systems as specially affected; and fourth, to recognize, in the manner in which they are affected, rather a disorder, a vitiation and aberration of function, than an irritation. Such are the rigorous conclusions to which the analysis of facts and opinions conduct us. We see in what they differ from, and approach to, the received ideas. They have no real affinity, but with the opinion of the authors, who have made hypochondriasis a nervous disease—an ataxy of the spirits—a neuropathy, as some have said. They differ from these only, that by those words are designated neither the nervous system, which is diseased, nor in what manner they are so; and as the nerves can be affected in a variety of manners, it is necessary for distinguishing them, to have recourse to definitions. We see after this how insignificant is the denomination of hypochondriasis. It presupposes that the disease is located in the hypochondriac region; a manifest error, since the cause is most frequently remote from this region, and the morbid phenomena never transpire exclusively in it. The expression morbus mirachialis, by which the Arabs designate it, is not more exact. The denomination morbus flatuosus, flatulent disease, is no better, because it only marks one symptom, and there are a thousand; it makes known neither the organ, nor the system diseased. Georget and M. Fabret have not been happier in creating the hybrid word cerebropathy. It indicates an affection of the brain; nevertheless this organ most frequently only experiences sensations, without being the seat of the disease. The expression neuropathy would be more suitable, because it would indicate the seat of the disease; but, as we have observed above, it is too vague: it designates neither the nervous system diseased, nor its mode of affection. It becomes necessary then to find, if possible, in one word, the denomination at once of the seat of the disease, and the manner in which the diseased system is affected. Now the compound expression neuro-taxy, appears to attain this end. First, it indicates which are the nerves diseased; and second, it specifies their mode of affection, ataxy, or want of order: this is, in fact, what is constantly presented in the analysis that we have made of the symptoms. As hypochondriasis affects at once the two nervous systems, and as the denomination, that I propose, indicates only the nervous ataxy, it will be necessary for more
exactitude, and in fine, to avoid every kind of mistake, to add to
the expression neurotaxy, the double epithet, cerebro-gangli-
onic; then the disease will be well characterized, as an ataxy of
the cerebral and ganglionic nerves. Thus, for us, hypochond-
driasis will be in future a cerebro-ganglionic neurotaxy."

Having thus examined into the nature and seat of hypochond-
driasis in the same analytical and precise manner as he did with
hysteria, our author concludes by comparing these two affec-
tions, than which heretofore, "ovum ovo similius," for the pur-
purpose of deducing their identity, or difference. "We have seen,"
says he, "that hysteria is a spasmodic affection of the cerebral
nervous system. Hypochondriasis is a disorder—a vitiation, an
aberration of the functions of the two nervous systems, whence
the denomination of cerebro-ganglionic neurotaxy, that we have
given it. There cannot then be identity in the affection or seat
of these diseases; since the one is a spasmodic affection of the
cerebral system only, and the other an ataxy of the two sys-
tems. There is therefore no other analogy between the two
diseases, but in the participation of the cerebral nervous system.
Thus, 1st, there is no identity between hysteria and hypochond-
driasis; and 2nd, those two diseases differ in their seat, as well as
in their mode of affection, and consequently, in the form of the
phenomena, which are spasms in the one, and vitiations in the
other."

We would naturally now be led to infer from the masterly
manner, in which the philosophy of these two diseases has been
exposed, that their therapeutics had arrived at a degree of per-
fection, precise, and well defined. But how different is the
true state of things; for although our author has traced out with
an admirable lucidity, the etiology and seat of these diseases;
yet, instead of carrying out his reasoning, and indicating what
are, or should be, the curative and palliative means, which we
should infer therefrom, he is wonderfully silent on this subject,
and appears rather to be satisfied in overthrowing the polyphar-
macy of the older writers, the very abundance of which is a
proof of its poverty—than in originating any thing new of his
own. All that he does recommend, are such moral and intel-
lectual remedies, as abstraction of mind from thought or business,
promenades, removal from difficulties, &c. which all those who
place the seat of hysteria in the brain, especially those of the
present epoch, universally adopt. This course is truly accord-
ing to the spirit of the age, and evinces that frankness, perhaps
now carried to an extreme, with which the French physicians
often announce the impotence of art. It is perhaps the habit of seeing therapeutics ineffectual in so many cases, connected with the natural leaning towards scepticism, which produces in superior minds such extreme distrust. We certainly, however, think, that reasoning from the now established nature of hysteria, we might draw some practically useful inferences, which must prove advantageous. For instance, hysteria has been shewn to be a congestive, paroxysmal disease, whose essentiality consists in a concentration on the brain, the seat of the perturbing irritation, and the consequent unhinging of the whole capillary and parenchymatous circulation. The treatment, therefore, must be made to repose on this basis: by first diminishing or eradicating the local irritation, the first moving power creating the disturbance; and second by imparting force and stability to the actions of the capillary, and parenchymatous structure and circulation. If we cannot succeed immediately in the first object, by means of depletives, counter-irritants, &c. the attainment of the last will be sufficient to arrest the paroxysmal type. This measure is accomplished either by the administration, or endermic introduction into the organism, of cinchona, or other means that produce a permanent excitement of the capillary and parenchymatous circulation. Cinchona has always been so effectual in this operation, as to lead some to attribute to it a specific property of antiperiodicity.

We deem it a misfortune for medicine, in one point of view, that the physiological doctrine of M. Broussais, should, by leading astray many enthusiastic and indolent minds, exercise so exclusive an effect upon the therapeutics of the present day. Not that we in the least accuse M. Brachet of Broussaisism in his treatise, for he distinctly and unequivocally affirms, that the opinions of M. Broussais on this subject are unintelligible and couched in contradictory sophisms. Still we cannot but think that the physiological doctrine, by infusing a doubt and scepticism, has in a great measure contributed to narrow the therapeutic views of our author, and to deprive him of a resource, which skillful practitioners have employed, and still continue to employ, with incontestible and daily benefit; a benefit it is true, that may be denied, but which, notwithstanding, does not the less exist; for a denial of a fact does not destroy it. No one is more sensible, than we are of the important services, which the Broussain doctrine has rendered to the science; but it has brought along with itself, evil as well as good. Striking, from its seductive simplicity, it has insinuated itself into all the de-
Brachet on Hysteria and Hypochondriasis.

partments of medicine; and reducing the whole practice to two indications, offers depletion and abstinence as an universal remedy. Now we believe that an error, more fatal or ruinous to the true interests of society cannot exist; it strikes at the root of all improvement, and confines the therapeutics, the most important branch of medicine, to the isolated, and despotic infer-

ences of a blind innovator, who despising the counsels of expe-

rience, and confident in his own infallibility, would have us to treat every disease indiscriminately with leeches and venesec-

tion. Who, in this country, would dare to reject the employ-

ment of quinqua in intermittents, or of mercury in syphilis? None, we trust. Their efficacy is established incontestibly and eternally. Still they are inadmissible according to the physi-

tological theory, and their modus operandi is but imperfectly un-

derstood; nevertheless they are established by experience and practice, and it would be altogether antiphilosophic to reject a remedy, because its mode of action cannot be perfectly conceived nor explained. On the therapeutics of hypochondriasis, M. Bra-

chet appears to take a more liberal and enlarged view. "Thus," says he, "whatever may be the admitted opinion concerning the nature of hypochondriasis, we always see figuring conspicuously certain antispasmodics, which do not cure, it is true, but which nevertheless, in moments of agitation, often procure the desired calm, or real relief. Therefore, although we cannot regard castoreum, assafetida, valerian, opium, etc., as remedies of hypochondriasis, nevertheless the practitioner must not entirely proscribe them, for he will often have occasion to employ them with the other resources of medicine. And here is a good opportunity to repeat the well known, though not the less novel observation, that man knows but seldom how to preserve a just medium: almost always he runs from one extreme to the other, or if he escapes from one precipice, it is only to fall into another. A man of talent recognizes the vices of a doctrine. Fully oc-

upied with combatting them, he only perceives the feeble side; and regardless of what is good, he unites all in one general pro-

scription. At this time even, when all minds appear united in a method of observation, more freed from prepossession, do we not find much exaggeration on the part of the modern authors, who reject in hypochondriasis every kind of antispasmodics? I daily employ them, and can congratulate myself upon the beneficial results. It is true, I do not exact from them results, which, I know they cannot and will not produce; but the hype-

ochondriac wishes to be cured, or to be treated for his complaint,
and for this he desires medicine. It is therefore essential to prescribe, if it is only to satisfy his imagination. To undeceive him, would be to render him up to hopeless despair; but in administering to him prescriptions, from which he is led to expect relief, you exercise upon him a moral remedy. It is thus indispensible necessary to associate pharmacetic with our hygienic means."

From what we have said above, let it not be inferred, that we fall into the common error of American practitioners, who aim for skill alone, because it is a quality sought for, and remunerated in our republic. Generally speaking, our country has not yet learnt to discover, or rather to appreciate, that nobleness of soul, and independence of thought, which has given a character and a name to French medicine. For, we ourselves are now constrained to confess, that we believe therapeutic medicine can have little or no effect in producing a radical cure in obstinate and long standing cases; at best it can but palliate the most distressing symptoms. On the sufferer himself depends the cure; on a strict avoidance of the paroxysmal exciting causes, and a rigid adherence to dietetical and hygienic medicine. This is no hasty prognosis of ours. It has been our misfortune already to have had no little sad, practical, professional experience in the treatment of these diseases; and it is from the desire of placing the subject in its true light, and inviting the public attention to the consideration of that Protean host of human miseries, Nervous Diseases, the penalties of a high degree of civilization and refinement, that we have been induced to offer our preceding remarks. Should they, in any manner, impart a better direction to further discussion on this subject, or tend to the point in view, our object will be attained.

Thomas M. Logan, M.D.

Charleston, Sept. 20, 1833.

Diseases of the Uterus, By CHARLES WENZEL, Doctor of Medicine and Surgery; Knight of the Order of the red Prussian Eagle, &c. &c. With 12 copper plates, &c.

2. Traité Pratique des maladies de l’Uterus et de ses Annexes, Fondé sur un grande nombre d’observations cliniques accompagné d’un Atlas de 41 Planches in Fol. Gravées et coloriées, représentant les principales Alterations Morbides des organs Genitaux de la Femme; Par Madame Veuve Boivin, Docteur en Medicine, Sage-Femme surveillante en chef de Maison Royale de Santé, decorée de medaille d’or du merite civil de Prusse, &c.


Practical Treatise on the diseases of the Uterus and its appendages, founded on numerous clinical observations, with an atlas of 41 colored plates, in folio, by Madam Boivin, M.D. Accoucher in chief of the Maison Royale de Santé, &c. &c. and A. Dugès, Professor of the Faculty of Medicine of Montpellier, Member of the Legion of Honor, &c. &c. 2 vols. 8 vo. Atlas containing 41 colored plates. Paris, 1833.

3. The Morbid Anatomy of the Uterus and its appendages, with illustrations of the most frequent and important diseases to which those viscera are subject, By ROBERT HOOPER, M.D. Bachelor of Physic of the University of Oxford, Member of the Royal College of Physicians of London, Physician to the St. Mary-le-Bone Infirmary, &c. &c. 4to. pp. 67, and 21 colored engravings. Lond. 1832.

Few organs of the animal economy perform offices more important than the female apparatus of generation:—few exercise a more extensive influence upon the general system, both in health and disease, and none, assuredly, more frequently become affected with the numerous maladies which constitute the common heritage of civilized life. Subservient to the execu-
tion of functions which are peculiar to the sex:—the seat of a monthly hemorrhagic-secretory evacuation, which continues, under ordinary circumstances, from the age of fourteen or fifteen to that of forty-five, and constituting, during the same period of existence, the apparatus in which the new being is vivified or conceived;—in which it is evolved and nourished for the period of nine months, and by the expulsive efforts of which the fetus, after it has attained a certain development, is thrown off, to enter upon a new career of existence, it will be readily conceived, that besides being liable to the diseases which are common to the other organs, its peculiar functions expose it, in a peculiar manner, to others from which they are entirely exempt. It is not only liable to the operation of most of those causes which derange and embarrass the healthy acts of the system in general, but the important offices it performs, in relation to the development and delivery of the fetus, render it prone, above all others, to become affected with disease. These diseases, too, are many of them of a formidable character, not only entailing protracted misery upon large numbers of the female part of creation, but setting at defiance all the best directed resources of the healing art, and advancing with steady and relentless strides to destruction. Few departments of pathology, therefore, demand of us a more attentive investigation, and we feel assured, that those who have experienced the difficulties of contending with this class of maladies, will hail with pleasure every effort which is made to elucidate their characters, and to devise a more successful method of treating them.—Much has already been done to determine their pathology and treatment, but assuredly much remains still to be done. They have not attracted that share of attention which their importance deserves, and consequently the pathology of the diseases of the uterus and its appendages has not kept pace, in the march of improvement, with that of the other organs. The three works, the titles of which we have placed at the head of this article, will do much to correct this defect. Though somewhat different in their plan, each is excellent in its way, and, taken collectively, they present by far the best exposition of the pathology of the uterine system with which we are acquainted.

The work of Dr. Hooper is appropriated exclusively to the consideration of the structural diseases of the uterus. Nearly the same course has been pursued by Professor Wenzel, who has nevertheless prefaced his observations with a brief exposition of the structure of the organ. Madam Boivin and Professor
Dugès have taken a wider range, not only giving a somewhat detailed description of the healthy characters of the organs, the changes they undergo at different periods of life, the modifications to which they are submitted during gestation, but also the rules to be observed in exploring their characters, and a full exposition of all those which affect the form and relations of the parts, and their structure. The first volume is divided into five sections, which are appropriated as follows:—Solutions of continuity: Lesions of situation: Alterations of form and volume: Distension by foreign bodies: Excrecences and degenerations. Dr. Hooper and Professor Wenzel commence with the consideration of inflammation and its consequences, afterwards describing the various changes of structure, degenerations, &c. to which the organ is liable.

We shall endeavour to present our readers with the sentiments of the authors upon some of these subjects.

In relation to the muscularity of the uterus, the sentiments of anatomists have always been at variance. While its existence has been admitted by a large majority, some have maintained, that the muscular tissue is only developed towards the term of utero-gestation, and disappears after delivery, while others have denied that it exists at any period, or under any circumstances. Even some of those, who have admitted that the walls of the uterus are composed in part of a fibrous structure, have denied that these fibres are muscular. Walter attributed the contractility of the organ, to the agency of the fibrous coat of the arteries, which ramify so abundantly in its substance, and Lobstein and some others have maintained, that it is only endowed with elastic fibrous tissues, possessing the same properties of the elastic fibres of the arteries. Professor Wenzel expresses the following opinion, as the result of numerous researches, instituted in relation to this point.

"Repeated and carefully conducted investigations, both of the impregnated uterus, and of that organ immediately after delivery, in which I confined not only to the knife, but likewise to all the usual means of examination, have revealed to me no indications of fibres which I could call muscular; and, not to rely upon the result of my own dissections, the same sentiment is sustained by the authority of those, who, in their examinations, have only admitted what was manifest to the eye; and upon no other evidence am I willing to grant the existence of these muscular fibres.

"Conclusions drawn from the comparative anatomy of the mammalia, cannot be admitted as satisfactory evidence of the muscularity of the human uterus. In these animals, the thin membranous uterus is unquestionably endowed with muscular fibres, similar to those of the urinary bladder. They are, moreover, influenced by the agency of Galvanism. An experiment of the
same kind, perhaps too imperfect in its nature, which I made upon a human
impregnated uterus, a short time after death, was not conclusive in relation
to its capability of being made to contract under the influence of that agent."
P. 5.

While we admit the full weight of Professor Wenzel's au-
thority, and award to his experiments all the value to which
they are entitled; while, moreover, we entertain a high respect
for the opinions of numerous other highly distinguished indi-
viduals, who have espoused his side of the question, we feel
fully justified, by the result of our investigations, to assert, in
positive terms, that the uterus is possessed of muscularity; that
its fibres can be rendered manifest to the naked eye, without
appealing to the microscope, as has been done by Roederer; that
their presence is proved by the active contractions of the organ,
and the suspension of this contraction by the influence of those
agents which control muscular action; and also by the chemical
analysis of Schwilgoue, and others, which have demonstrated
that they contain a large proportion of fibrine.

It may appear a little strange, that after all the numerous in-
vestigations which have been instituted upon this point, and all
that has been said and written in relation to it, from the time of
Vesalius and Ruysch up to the present period, we should be in-
debted to the labors of a female for the most accurate and satis-
factory description of the disposition of the muscular fibres of
the uterus. It is, nevertheless, true; and to the investigations
of Madam Boivin are anatomists under obligations for this elu-
cidation of an abstruse and intricate part of animal structure.—
The following are her observations upon this subject:

"It will always be possible, even in an unimpregnated uterus, provided it
be a little gorged with menstruation, to recognize, 1. a series of longitudinal
fibres, forming, immediately beneath the peritoneum, a longitudinal band,
disposed upon the median line of the anterior and posterior faces of the body
of the organ. 2. Oblique fibres, diverging from the exterior circumference
of the body of the uterus towards the round ligaments, the broad ligaments,
and the fallopian tubes. The latter may be divided into several broad and
flat fasciculi, according to their direction. Upon the fundus of the uterus,
there is a transverse fasciculus, extending on each side towards the fallopian
tubes, upon which they continue, forming their external tunic, or longitudinal
fibres. A portion of them, running posteriorly towards the ovarium, form the
ligaments of those bodies. Upon the anterior face there are two oblique fas-
ciculi, the one ranging somewhat downwards, the other merely transversal,
both of which are distributed laterally upon the round ligament. Posteriorly,
and beneath the fasciculus described above, there are a considerable number
of fibres disposed obliquely and ascending. Of these, one portion extends
laterally towards the base of the ovaria, gradually spreading out as they
advance: the others twine round the sides of the uterus, to mingle with the anterior fibres, with which they form the round ligament.

"To these must be added two other strong fasciculi, which, arising from the substance of the middle part of the posterior face of the neck of the uterus, advance backwards, elevating the peritoneum, receding from each other, and attaching themselves to the lateral borders of the middle part of the sacrum. They constitute the posterior, or utero-sacral ligaments, which are as essential as the round ligaments to maintain the organ in its proper situation: for while the latter prevent the fundus from falling backwards, the former prevent the neck from being projected too much forwards into the vagina."

This is the disposition of the external superficial stratum of fibres in the unimpregnated uterus. During gestation they are submitted to considerable changes, dependent upon the enlargement and distension of the organ.

"The fibres of the middle longitudinal band are spread out, and thrown towards the sides, to become confounded with the oblique, of which they seem to constitute the sequel; their elongation only changing slightly their direction in consequence of the retraction of the entire condensed organ towards the centre.

"In the uterus of a female who has died during gestation, or delivery, the separation of the peritoneum may be facilitated by maceration, so as to expose, very distinctly, when the organ is properly distended, the divergence of the superficial fibres towards the fallopian tubes and the broad and round ligaments, and not towards these latter exclusively, as represented by Rozemberger, and figured in his plates, which are in other respects accurate. At this period can also be distinguished the direction of the fasciculi and fibres of the deep seated, or internal stratum. Notwithstanding the fibres of this stratum unite frequently, and again separate from each other, to form undulated or reticulated fasciculi, as has been well represented in Hunter's plates, the assemblage of them can be traced out with equal facility. An examination of them will demonstrate, that the fibres of the neck of the uterus, with the exception of a few fasciculi which exist in the arborescent folds, are, as has been represented by Verheyen, mostly transverse or circular. It will also be seen, that the body of the organ is surrounded by fibres, which are distributed in concentric circles, forming two large hollow cones, the summit and centre of which are represented by the orifice of the fallopian tubes, as has been correctly stated by Weitbricht.

"Besides the two principal strata, the impregnated uterus presents several planes, the one superposed upon the other, the fibres of which intercross in various directions. These have been observed by Röderer, Loder, Meckel, and others; but they are so intimately confounded with the two first, and especially with those which we have described under the appellation of the external stratum, that they cannot be scrupulously regarded in considering the rational structure of the uterus."

These observations can be easily verified by the careful examination of the uterus of a female who has borne many children, and especially if such examination be made of the impregnated organ,
or when it has become affected with hypertrophy. We have experienced no difficulty in tracing out the disposition of the superficial fibres, as represented by Madam Boivin, and those of the neck of the uterus may also be unravelled without much difficulty.

In relation to the distribution of the vessels, Madam Boivin makes the following observations:

"Innumerable veins, taking their origin from the hypogastric and the ovarian, and inordinately dilated, form an extensive plexus, especially at the point corresponding to the attachment of the placenta. This plexus, interposed between the external and internal strata of fibres, and interlaced somewhat with the latter, presents at the point to which the placenta is attached, several large, rounded, regular, smooth openings, distinguishable by their slightly patulous mouths. It is probably from these orifices much diminished in size in the unimpregnated uterus, that the menstrual blood escapes; as it is from them, in their full state of enlargement, that the fetus is nourished during the period of its development. They are furnished with an extensive arterial anastomosis, and minute injections thrown into the arteries will sometimes pass into them. The arteries, however, though very abundant, are smaller than the veins."

It may not be amiss to advert to the opinion expressed by our authors, relative to the mucous membrane, especially as it is at variance with that entertained by a large majority of anatomists. It had already been affirmed, from the results afforded by examination of the uterus, directly after the delivery of the product of conception, by Mery, Morgagni, Azzoguidi, and Chaussier, that the organ is entirely destitute of a lining membrane. This opinion is advocated by Madam Boivin.

"It is certain," says she, "that after delivery, and during gestation, when the membrana caduca has been removed, there is not the slightest trace of any mucous membrane. The fibres of the uterus are perfectly naked. Neither is it possible, in the unimpregnated uterus, to separate by dissection, any thing which resembles a mucous membrane. That of the vagina may be traced upwards as far as the os tincæ, where it becomes very thin, and terminates abruptly upon the borders of the orifice of the uterus. We have, nevertheless, been able, but in the body of the uterus only, to raise upon the point of the scalpel or a lancet, a very thin, semi-transparent, reddish colored, homogeneous epithelium, smooth and polished, and similar in its general aspect to the lining membrane of the heart, but softer and much thinner. We merely regard it as a kind of epidermis, capable of being destroyed and reproduced with the same facility; and it is probable that the functions proper to mucous membranes, as exhalation and secretion, are here performed by the proper substance of the uterus, by its blood vessels, and the follicles which are lodged in the meshes of its fasciculi and fibres."

However plausible these arguments, they are neither borne out by analogy or the results of anatomical investigation. The
mucous membrane can be demonstrated lining the uterus, and extending into the fallopian tubes; it performs the offices peculiar to mucous membranes; is liable to the same diseases, and when affected with hypertrophy, becomes so apparent as to leave no question of its existence.

We next meet with some interesting observations on the changes which the uterus undergoes at different periods of life, and during gestation and delivery. These changes are detailed with great accuracy, and with considerable minuteness; but although highly important both to the accoucheur and the medical jurist, we shall be obliged to pass them over. We shall do the same with the anatomical description of the other portions of the generative apparatus, and the exposition of the congenital defects to which they are liable. The sections devoted to these subjects contain many interesting and instructive details.

Our authors have entered at some length into an examination of the proper method to be pursued in examining and distinguishing uterine diseases. The means of exploration enumerated by them are, pressure and percussion above the pubis, the touch by the vagina, the touch through the rectum, the speculum uteri, the stethoscope, metroscope of Nauche, &c.—It is needless that we should follow them in their observations upon the method of conducting these examinations. Suffice it to say, that in many cases it will be advisable to avail ourselves of all the means of exploration which have been enumerated, and when the disease is seated in the vicinity of the mouth of the uterus, especially of the speculum uteri, which, when it is introduced, will enable us to throw the light of a candle directly upon the diseased part, so as to expose the character and extent of the malady. The stethoscope and metroscope they do not consider capable of furnishing any certain or important information.

In the section devoted to the consideration of wounds of the uterus, a number of interesting cases are detailed upon the authority of different authors, some of which terminated favorably, notwithstanding the injury inflicted was very extensive. Simmons reports a case in which the impregnated uterus of a dropsical female was perforated with a trocar, notwithstanding which the gestation continued without interruption. A case is also described, in which that organ was successfully punctured for a hydric affection, in a female aged fifty-three. Rousset also reports an instance in which the uterus was traversed by a pistol ball, which killed the child, but the mother survived, and
the wound healed. In another case, the charge of a musket, consisting of several balls and slugs, was received by a female at the full term of utero-gestation. Besides several other wounds, one entered the left side of the hypogastric region. The injury was followed by loss of blood and lypothamia, and after a short time, by labor and spontaneous delivery. Under the right clavicle of the child, there was a wound which contained a fragment of the clothing of the mother, and a slug of the size of a pea. Both mother and child recovered, but a fistulous opening continued in the uterus, through which a part of the menstrual fluid escaped, and did not close up until about the expiration of three years. Langius and Hoffman describe cases still more formidable, which did well; the first where the head of the child was extensively laid open by the thrust of a sword; the second where a sharp pointed stick transfixed the walls of the uterus, and inflicted an injury upon the chest of the child. But the most extraordinary of all the cases of wound of the uterus is the following. A woman had her abdomen and uterus so extensively laid open by the horn of a bull, that the foetus included in its membranes, dropped out and fell to the ground. It was replaced, and the abdomen sewed up: yet, notwithstanding the extent of the injury, the woman recovered, and at the full period of utero-gestation was delivered of a living child. It would be rather a severe tax upon our credulity to give credence to the authenticity of the details of this case; but it is possible, as has been suggested by our authors, that some mistake has been made by the reporter.

It must not be inferred from what has been stated, that wounds of the uterus are unattended with danger. In some cases, even wounds of a trivial character have proved almost instantaneously fatal. Still, however, the results of the cases mentioned above, of excisions of a portion of the organ; of lacerations taking place during labor, and other injuries to which it is exposed, are sufficient to convince us that it may be sometimes extensively implicated, without giving rise to fatal consequences. The mouth and neck have been repeatedly excised with complete success, and cases have occurred in which even the whole of the organ was removed without death ensuing.

The uterus is liable to many displacements, some of which give rise to considerable inconvenience and distress. The following alterations of its relations are described by the authors. Prolapsus, antversion, retroversion, hernia, and præternatural
attachments. Each of these conditions is examined with scrupulous attention, and its causes, symptoms, and treatment portrayed with great clearness.

Prolapsus of the uterus may present itself under three degrees: in the first there is simple abasement of the organ, or incipient prolapsus. In this form of the disease, sometimes described under the appellation of simple relaxation, the uterus descends towards the lower part of the pelvic excavation, shortening the vagina, and dilating its upper part, into which the mouth of the organ penetrates. The direction of the organ is but little changed.

The second degree, denominated descent, semi-prolapsus, or delapsus, (Kulm.) is characterized by the projection of the os tinnæ at the vulva. The uterus reposes upon the internal face of the perineum, and occupies the whole of the cavity of the vagina, the upper half of the walls of which being inverted upon itself like the finger of a glove, the summit of which has been thrust into its cavity. In this form of the disease the axis of the organ is so changed as to make it correspond to that of the vagina, or the inferior strait of the pelvis.

The third degree consists of the complete falling down or precipitation of the uterus, (complete prolapsus.) Here the entire organ escapes through the vulva, and covered by the inverted vagina, which includes, besides the uterus and its appendages, the bladder, a part of the rectum, and more or less of the other intestines, hangs pendulous between the thighs.

This disease has been attributed too exclusively to a relaxation of the vagina, and the round and broad ligaments, although there can be no question that such a condition of these parts is favorable to its development. It is not unusual to observe a very considerable relaxation and dilatation of the vagina without giving rise to any displacement; and an attentive examination of the broad and round ligaments will show, that although they must be put greatly upon the stretch in the second and third degrees of the disease, they cannot present any obstacle to the development of the first. It is then in a relaxation and elongation of the utero-sacral chords, that we must seek an explanation of the simple abasement of the organ; an elongation which must necessarily be very much increased in the second and third degrees, inasmuch as the organ, under those circumstances, not only descends much lower, but is at the same time carried forwards. Thus submitted to inordinate and protracted distension, those chords entirely disappear; their fibres are atrophied
and annihilated, and the portion of the peritoneum by which they are covered unfolds itself, and becomes spread out upon the neighboring organs.

The disease, therefore, may either originate from a native feebleness of these chords, or from a preternatural elongation of them arising from repeated and continued distension. The first cause explains its occurrence in virgins, in which, though not of frequent occurrence, it sometimes takes place, as was long since noticed by De Graaf, Saviard, Mauriceau, and others. The second condition is generally concerned in its production in those who have been married, or have borne children. During gestation, the round and broad ligaments are put upon the stretch by the ascent of the uterus, and during the second stage of labor, the utero-sacral are also violently elongated, by the great dilation of the mouth of the organ, and its forcible protrusion downwards and forwards by the descent of the fetus. The vagina, together with the pelvic aponeurosis which it traverses, are also inordinately distended; the parts are generally left in a relaxed condition, or are rendered so by leucorrhœa, excessive coition, &c.; and if to these causes be added the inordinate weight of the organ which exists after delivery, or that which is occasioned by various diseases implicating its structure, we shall have a satisfactory explanation of the manner in which prolapsus is generally induced.

Where these conditions have been induced, the descent of the organ may be excited by any sudden or violent efforts, as lifting heavy bodies, leaping, straining at stool, &c.; also by large tumors pressing upon it, and forcing it down into the pelvis, and various other causes. A preternatural shortness of the vagina is also assigned by Madam Boivin as a cause of the disease.

The symptoms of the first degree of prolapsus are not very strongly developed. The individual experiences a slight dragging sensation about the loins, and a trifling bearing down about the anus. These are aggraved in the act of walking, or in making any bodily effort; and the finger introduced a small distance into the vagina comes directly in contact with the anterior face of the neck of the uterus. The os tinea will be found inclined towards the posterior part of the canal, and if it be slightly elevated, so as to expose its mouth, a considerable cul de sac, will be found upon its posterior part. In the second degree, besides the pain and dragging of the lumbar and sacral regions, there are others experienced in the inguinal, and sometimes in the umbilical regions, the latter of which are doubtless owing
to the stretching of the bladder and urachus. The sense of pressure about the anus is increased whenever the individual attempts to walk; the urine is sometimes voided with difficulty, and more frequently than ordinary; but above all, the patient is sensible of the existence of a voluminous body, which feels as though it would escape from the vulva, whenever she makes any exertion. An examination readily reveals the presence of the displacement. The orifice of the organ is frequently found presenting at the vulva, or may be readily discovered surrounded by a prominent border, and a deep cul de sac, by the introduction of the finger. On applying the hand above the pubis, an excavation corresponding to the vacuity left by the displaced organ can be readily distinguished. This latter symptom is regarded by our authors as the best means of distinguishing between a prolapsus of the uterus, and an elongation of its neck.

"The complete prolapsus occasions a much more painful sense of dragging, and greater inconvenience. The bladder is carried backwards, and considerable difficulty is experienced in voiding urine. The tumor is increased in volume whenever that organ is distended, and considerable difficulty will be experienced in passing the catheter, unless care be taken to direct it backwards. The rectum is also embarrassed in its functions; but the principal inconvenience arises from the pressure of the tumor, which is frequently from six to eight or ten inches in length, hanging pendulous between the thighs. This tumor, sometimes globular or ovoid and constricted at its upper part, is more frequently conoidal, with its large base within the vulva, the skin of which is extended somewhat upon its surface. Upon the summit of the tumor, the orifice of the uterus is visible, sometimes considerably contracted and of a semilunar configuration. It gives exit to a mucous discharge, and at the period of menstruation, to that fluid. The whole surface of the tumor pours out a mucous fluid, which is sometimes of a purulent character; and it is generally inflamed and ulcerated, and covered with a kind of dry incrustation. It is only in those cases of prolapsus in which the displacement is almost congenital, that the membrane of the invested vagina is capable of adapting itself to the contact of the air, the thighs, and the clothing, and by becoming dry, acquiring the properties of the skin; an example of which we have now under our observation, 1832, and others have been reported by Saviard and La Faye. It is in such cases as these, by a gross comparison, that the ignorant and the lovers of the marvellous have believed in the existence of hermaphrodisms, which have not even so much plausibility in their favor as certain vices of conformation. This was the case with Margaret Malauze, who was condemned by the magistrates of Toulouse, to wear mens' apparel. This error even was more excusable than that committed by Duval in the case of Maria Lemarcis, who was merely affected with a prolapsus in the second degree, but which was mistaken by him, in consequence of his having been misled by the far fetched comparison made by the ancients between the penis and the os tincm."—p. 91.

However distressing and painful a complete prolapsus of the uterus may be, experience proves that when it is reducible, it
does not constitute an insuperable obstacle to conception. Madame Boivin observed one case in which the prolapsus was complete during the day, but returned at night; yet notwithstanding this, the woman twice conceived. The accident was first induced by an extensive laceration of the perineum which took place in the course of a difficult labour. In some cases, however, the displacement, even where the prolapsus is not complete, may prevent impregnation from taking place, our authors suppose, by the closure of the orifice of the uterus, by the constriction of the vagina which surrounds it, so as to render it impossible for the male semen to enter the cavity of the organ. But much more serious consequences sometimes ensue: the organ becomes violently inflamed, tumefies, ulcerates, and not unfrequently takes on such profound and extensive degenerations of its substance as to destroy the life of the patient. The inflammation and tumefaction, moreover, occasionally terminate in gangrene, and a sloughing of a part or the whole organ. Elmer observed a case, in which a small part of the uterus which protruded at the vulva was destroyed and thrown off by that process, and two years after, a complete prolapsus having been induced by the succussion occasioned by the performance of a journey in a carriage, the whole organ became tumefied and sphacelated, and at the expiration of several days, sloughed away. The individual nevertheless recovered. Rousset has reported three similar cases, in one of which the uterus was found entirely absent after death.

The difficulty of effecting a cure of prolapsus of the uterus will depend much upon the degree of displacement, and the ability to reduce it. Where it only exists in the first degree, it seldom attracts the attention of the individual, or gives rise to sufficient inconvenience to require the attention of the accoucher. An avoidance of all causes that would tend to increase the descent of the organ, together with astringent injections, cold hip bath, &c. will in general be all that will be necessary. But where the displacement is more considerable, it will be requisite to resort to more efficient means;—the organ must be replaced and maintained in its proper position by mechanical means. Even where the prolapsus is complete, and has existed so long as to render its reduction difficult, on account of the enlargement and induration of the organ, success must not be despaired of. Persevering attempts should always be made to soften and reduce the volume of the tumor, and to replace it. Saviard succeeded in reducing the prolapsus of Margaret Malause, although it had existed so long as to render it almost a natural condition;
and it has been proposed by him, as well as Mauriceau, Leblanc, Hoin and others, by way of facilitating the reduction, to confine the patient to bed, and to employ blood letting, emollient fomentations, baths, and rigid diet, to diminish the volume of the tumor. To these means may be added the application of a roller bandage, proposed by Leviellé and Bobe-Moreau, which has been resorted to with success. The bladder and rectum should always be well emptied before any efforts are made to return the tumor. By these means, the reduction can frequently be accomplished even under unfavorable circumstances; still there are cases in which it will be impossible, and by making unjustifiable efforts, violent inflammation and other mischievous consequences may be developed.

Having replaced the organ, the next object is to retain it in its proper situation. Various means have been devised for this purpose. Those which are most usually employed are tampons and pessaries variously constructed, the object of which is to sustain the uterus by their mechanical operation. In slight cases, the sponge tampon may be employed with advantage. Being first well oiled, it should be passed up in the bite of a pair of forceps to the mouth of the uterus, where, by imbibing the secretions of the vagina, it will expand sufficiently to sustain the organ, and prevent it from descending. It should always have a strong thread passed through it, by which it may be withdrawn as often as it becomes necessary to change it. The pessaries which are employed should be smooth, and constructed of materials not so friable as to be easily broken. The central aperture with which they are perforated should not be large enough to allow the os tincæ to enter it and become constricted;—an accident which has sometimes happened. In France they are generally made of cork coated with wax, and perforated in the centre. The outer circumference has an obtuse rounded border; the internal is bevelled off—they are either round or oval, to suit the nature of the case, or the preference of the practitioner. They are also made of the same form of caoutchouc stuffed with carded cotton; and these are generally preferred. A conoidal pessary is sometimes employed, especially in complicated cases. The instrument represents a truncated cone, the base of which somewhat excavated, is directed upwards to receive the os tincæ, while the smaller extremity is supported by means of a bandage. Jules Cloquet has employed with much advantage, a pessary constructed upon this principle, which he denominates etyrtoïd. It is somewhat flattened and curved from
before backwards. Bruninghausen has recommended a pessary with an excavation upon its posterior and anterior part, corresponding to the situation of the rectum and bladder, and long enough, in its transverse diameter, to keep it in place. Where the relaxation of the vagina will admit, the transverse diameter of the instrument should be long enough for it to repose upon the rami of the ischium and pubis, which will generally require three inches. The round or oval pessaries are preferred by Madame Boivin and professor Dugès.

"They dilate the vagina equally, and form for themselves a kind of nidus, or circular depression in the walls of the vagina, which serves to maintain them in place. When of medium size, the woman soon becomes accustomed to the slight inconvenience which they at first occasion, and the principal trouble they afterwards give rise to, is an augmented mucous discharge similar to that of leucorrhoea. The instrument should be accurately adapted to the size of the vagina, but should be slightly larger. It should be introduced edge foremost, as far forwards as possible, and then reversed so as to fix its opening in the direction of the axis of the vagina and the orifice of the uterus. To effect this evolution, the end of one finger may be placed in the opening of the pessary, or what is better, by drawing a thread previously attached to that border of it which is first introduced, while the opposite border is supported by the end of the finger. This thread will be useful in withdrawing the instrument, for the purpose of cleansing it, which should be done at least twice a month."

In some cases the ordinary gum elastic pessary cannot be employed, on account of the uneasiness it occasions from its volume, or because of its insufficiency to effect what is desired. When that difficulty occurs, it is proposed to use one en bilboquet: or an instrument which consists of a superior, circular, and expanded portion somewhat excavated, and a stem or column, upon which it is surmounted. It should be constructed of ivory or wood. The circular portion need not be so large as a common pessary, but should be excavated for the reception of the os tinctæ, and perforated by an opening somewhat larger than that of the common instrument. The stem should be curved to adapt it to the curvature of the vagina, and to prevent the chance of injury from any accidental force applied to its extremity which projects at the vulva, it may be constructed of spiral wire, as proposed by Recamier. It must be confined in its situation by means of a T. bandage.

In our own practice we have found no means so efficacious as the satchel of professor Osiander. It consists of a small bag made of soft linen, about three inches in length, and of a diameter corresponding to that of the vagina. This is filled with finely powdered oak bark, and saturated with red wine, in which
state it is introduced and confined by a bandage. It must be removed every day, and replaced by a new one.

Whatever means are adopted, much benefit will be derived from rest in a horizontal posture, with the hips elevated; the cold hip bath; the cold dash; the employment of cold astringent injections; as a decoction of oak bark; or solution of the acetate of lead, sulphate of zinc, sulphate of alumine; a watery solution of catechu or kino, or what we have found very efficient under such circumstances, a strong infusion of the green fruit of the green persimmon (diospiros Virginiana.) It will sometimes be more useful to pass these up into the vagina, by means of a mesh of fine lint previously immersed in the solution.

Pregnancy has been known in some cases to effect a radical cure; and the same thing has been attempted by more active means than those which have been detailed. It has been recommended with this view to effect an obliteration of the vagina, by exciting an adhesion between the corresponding surfaces of its lining membrane—an object which it will always be difficult to accomplish. Marshall Hall, however, has reported a case in which he succeeded by removing a strip of the mucous membrane of the vagina, of an inch and a half in breadth, and the whole length of the canal, and afterwards uniting the edges by means of several sutures. Neither pain or fever succeeded, and at the time the case was reported, the displacement had not recurred.

The treatment of the complications which sometimes attend a prolapsed condition of the uterus, must be conducted upon general principles, and need not be detailed here, as it must necessarily be varied to suit individual cases.

We shall pass over the chapter on anti-version of the uterus, which, although it contains a very excellent exposition of the characters of the disease, and its treatment, does not present any thing very worthy of comment.

The subject of retroversion deserves a more particular examination. Two conditions are conceived necessary by our authors, to give rise to retroversion of the uterus, possessing a character to prevent it from replacing itself spontaneously. These are, first, a relaxation of its ligaments similar to that which occurs in the first degree of prolapsus; and second, an augmented volume of the organ. These conditions existing, it may take place in three different degrees: the fundus thrown backwards, may be situated considerably below the level of the neck; both of these parts may be on the same level; or the neck may be lower than
the fundus, the entire organ being situated lower down in the pelvis than in its natural state. Indeed, the simple abasement of the organ, as it is always attended with a slight obliquity of descent, frequently disposes to this accident, which will be apt to occur under such circumstances, if the size of the fundus and body be at the same time increased. The disease may be excited by various causes. It sometimes follows delivery, in consequence of the organ being larger than in its natural state. (Callisen.) Compte, in the case of an individual who died of peritonitis, found the fundus of the uterus bound down by an accumulation of feces in the rectum: the os tineæ was situated above the pubis. Desault saw it produced by the presence of a uterine polypus; but without doubt the most frequent cause is pregnancy. Between the third and fourth month, the size and weight of the uterus are increased, but are not so much augmented as to elevate the organ above the hollow of the sacrum. After its fundus has ascended above the brim of the pelvis, a retroversion cannot be easily induced. Smellie and Hunter, nevertheless, report cases in which it occurred at the fifth month; and an example is cited by Bartlett, in which it took place as late as the seventh. Our authors do not think that the last case can be properly considered as an example of retroversion, as the individual was delivered naturally; and the same remark is made by them in relation to one reported by Merriman, in which the displacement occurred at the full term of utero-gestation. A preternatural narrowness of the pelvis, enumerated by Callisen, among the predisposing causes of retroversion, has no doubt considerable influence in its production; especially if the promontory of the sacrum be large, and its excavation more profound than usual. Under these circumstances, the fundus of the uterus cannot so easily ascend above the brim of the pelvis, and not being well sustained in the vertical direction by the sacrum, it will be more easily thrown backwards.

But the cause which has been generally supposed to exercise the greatest influence is a retention of urine. Denman, Merriman, Callisen, Boër, Sibergundi, and others, have attached much importance to this occurrence, conceiving that the ascent of the bladder, occasioned by its distention, carries the neck of the uterus with it, so as to give its fundus a greater inclination backwards. Some, however, have insisted that the suppression of urine is merely a consequence of the pressure of the os tineæ on the course of the urethra. It is questionable if a simple distention of the bladder, where the uterus occupies
its natural elevation in the cavity of the pelvis, would be competent to give rise to such a result; but where an abasement of the organ has already taken place, a retroversion might be readily induced in the manner stated. The following case, cited on the authority of Parent, puts this beyond a doubt.

"The retroversion took place for the first time during the second pregnancy. It was occasioned by a bodily effort, and came on suddenly in the course of the month. After several fruitless efforts to reduce it, Parent, finally passed his whole hand into the rectum, and finding the uterus movable, he pushed the fundus towards the right sacro-iliac symphysis, which was very prominent, and then succeeded in throwing it forwards towards the pubis. But in this situation, the organ still pressed upon the urethra; the bladder became distended, and the displacement was reproduced. The reduction was a second time accomplished by the same means; the catheter was left in the bladder; constant repose was enjoined for several weeks; the uterus finally ascended from the cavity of the pelvis, and the gestation went on. In the next pregnancy the same accidents occurred, and M. Parent, not being called, abortion took place. The female became pregnant a fourth time, and at three and a half months had a recurrence of the retroversion, and the accident was repeated as often as three times, in the course of a few days, in consequence of the catheter not having been kept properly in the bladder. On each occasion the reduction was accomplished by passing one hand into the rectum, and a few fingers of the other into the vagina. Finally, in a fifth pregnancy, the symptoms of retroversion were again threatening; the abasement of the uterus having already occasioned so much pressure upon the urethra as to distend the bladder, but the accident was prevented by requiring the female to wear the catheter constantly."

The retroversion is sometimes gradually developed; but more frequently it comes on suddenly, in consequence of some effort or a sudden commotion occasioned by fright or any other cause. Lifting heavy weights, falls, a false step, &c. are frequent exciting causes.

One of the first symptoms is a partial or total suppression of urine. The individual experiences an unusual movement of the abdomen, a fluttering of the hypogastric region, a sense of weight or pressure extending through the pelvis—sometimes expulsive efforts excited by tenesmus, a dragging in the inguinal and lumbar regions, obstinate constipation, distension and pain of the whole abdomen, symptoms of peritonitis and metritis, vomiting, &c. These may be regarded as presumptive evidence of the existence of retroversion, but the touch alone can enable us to decide definitively upon its presence. The finger passed up the vagina, encounters a roundish tumor, the consistence of which will be different, according as the uterus is impregnated, or merely engorged. It will be found filling up the whole of the pelvic excavation, and often pressing down a
portion of the vagina, which will form prominent borders or folds at the vulva. The posterior part of this canal will also be shortened, while the anterior, in consequence of the tilting upwards of the os tincæ, will have its length increased. If the finger be passed up behind the symphisis pubis, it will sometimes be able to reach the orifice of the uterus, but when the retroversion is more considerable, it will be placed entirely out of reach. The finger passed into the rectum will generally distinguish the fundus of the uterus pressing against that intestine, and closing its canal, so that the faeces cannot pass, except with difficulty.

There are some diseases with which retroversion of the uterus may be confounded. Thus, when the distension of the bladder becomes so enormous that its fundus mounts high in the cavity of the abdomen, as happened in a case delineated by Hunter, where it reached the epigastric region, the fluctuation may be mistaken for an ascites. Examination per vaginam will prevent such an error, and if the catheter be introduced, the abdominal tumor will be at once removed. Large serous cysts, moreover, developed in the vicinity of the vagina, might impose upon a careless observer. Should such a cyst exist, after the pregnancy is advanced, the uterus containing the body of the foetus may be felt through the walls of the abdomen, so as to enable us to avoid such a mistake. When the uterus is unimpregnated, the diagnosis will be more difficult, but may be generally established by a careful examination of the situation of the os tincæ, and the relations of the organ with the surrounding parts. The following case, cited by Madam Boivin and Professor Dugès, on the authority of Nauche, furnishes a good exemplification of the manner in which an extra-uterine conception may be mistaken for a retroversion.

"In the vagina could be distinguished a large ovoid tumor, which seemed to the touch to contain an extraneous body; and a fluid. The neck of the uterus was thrown upwards above the symphisis pubis, but could be brought down by the index finger, to the middle of the vagina, and its orifice, which was soft and slightly patulous, readily admitted the end of the finger. This circumstance should, in our opinion, have afforded satisfactory evidence of the non-existence of a retroversion. It was a proper case for the insinuation of a stilette, as recommended by White, into the cavity of the uterus, for the purpose of exploring it; an operation which is ordinarily impracticable where retroversion exists, not so much on account of it being occupied by a fetus, as its peculiar situation. Nevertheless, several distinguished practitioners, as Dubois, Dupuytren, Capuron, Lisfranc, Maygrier, and Londe, supposed it to be a case of retroversion. Ineflectual efforts having been made to effect reduction, the symptoms were all aggravated, and it was resolved to puncture
the tumor. About three ounces of a reddish colored fluid was discharged, and violent griping and faintness supervened, but the attempts at reduction were as fruitless as before. The discharge of the fluid continuing, the volume of the tumor was diminished somewhat; the uterus descended slightly, and its neck approached the arch of the pubis. Blood was also discharged by the rectum, which afterwards became fistulous; and about two inches above the anus an aperture was discovered which formed a communication between the rectum and a large cyst. Through this opening, soon afterwards, the fragments of a putrid fetus were discharged, which were shortly followed by its appendages. The woman did not long survive, and it was found, on examination after death, that the uterus was empty, and merely adhered to the cyst, which had contained the product of the conception."

Our authors express the opinion, that the cases of retroversion of the uterus cited by Merriman, as taking place at the full term of utero-gestation, were in reality examples of extra-uterine conception, only differing from the case just cited in the fact, that the mother recovered after the expulsion of the fragments of the dead fetus.

Retroversion of the uterus can never be regarded as a trifling accident; for independent of the difficulty of returning the organ to its proper position, and the danger of inflammation and its consequences, it very often happens, that the attempts which are made to reduce it, bring on abortion, which sometimes takes place even after the reduction has been accomplished. There are, moreover, other difficulties growing out of it; as for example, obstruction and distension of the bladder, pressure upon the rectum, the contraction of anormal adhesions, &c. all of which may occasion much difficulty.

We extract the observations of the authors on the treatment entire.

"The first, and the only true indication, is to restore the uterus to its natural situation—an operation which is not always difficult. In the first case which presented itself to Baudelocque, the reduction was easily accomplished; and even unassisted nature is sometimes adequate to the task, provided some of the obstacles be removed. Thus, the emptying of the bladder, either by the introduction of the catheter, or by elevating the neck of the uterus upon the tip of the finger, as proposed by Baudelocque, was found sufficient in three cases by Berger, and in one by Outrepont; or at the same time evacuating the rectum, as was successfully done by Sibergrundi. These favorable results were facilitated by blood-letting, and the use of the bath, which adjuvants should never be neglected. Dewees repose full confidence in the free abstraction of blood, which he carries even ad vitium animi before he attempts reduction; but others merely regard it as a slow and temporizing remedy. In one instance, it was only after ten days of expectation, and the employment of these auxiliaries, that Baudelocque effected the reduction of the organ. To accomplish the restoration of the uterus to its natural situation it is not always necessary to place the woman on her knees and elbows. We shall
sometimes succeed better with the body in a state of supination; though one
of pronation is more advantageous to favor the return of the fundus of the
uterus after it has been disengaged from the hollow of the sacrum. To ef-
fet this latter purpose, it is proposed by Capuron, to push the fundus towards
the right side, in front of the sacro-iliac symphysis, by impressing upon it a
half turn. In the attitude of pronation, the operator can more easily pass his
fingers into the rectum, to push up the fundus, and in some instances the
whole hand may be introduced. Baudelocque, Dewees, and Nagele think,
that very often it will be sufficient to pass the fingers into the vagina, by
which they have frequently succeeded; but by adopting that course, the utility
of the fingers of the other hand in drawing down the neck of the uterus will
be very much diminished. For this purpose, two fingers may be insinuated
into the vagina, and carried behind the symphisis pubis; or a strong catheter
introduced through the urethra into the bladder, may be employed as a lever
upon the os tineæ, in the manner recommended by Bellanger and Lallemand,
by which that part of the uterus may be depressed, while the fundus is eleva-
ted."

After the reduction has been accomplished, if the uterus be
unimpregnated, a pessary must be worn to prevent a recurrence
of the displacement; but if it occur during gestation, the indi-
vidual must be required to maintain perfect quietude in the
horizontal posture, and on the back, until after the expiration of
several weeks; care being taken to prevent, by the use of the
catheter, any accumulation of urine, and to keep the bowels
free. After the fifth month, the fundus of the uterus having
risen above the brim of the pelvis, there is little danger of the
accident; but it will still be prudent to enjoin the necessary
precautions against any sudden shock or emotion.

"Sometimes the reduction cannot be accomplished by the ordinary means,
and the life of the woman is endangered, if proper means are not taken to
preserve her life. Shall we under such circumstances puncture the bladder,
as proposed by Sabatier? This would be probably attributing more impor-
tance to the distension of that organ than it deserves, since there are but few
cases in which the catheter cannot be introduced. Shall we, as recommended
by Hunter, plunge a trocar into the body of the uterus? Similar punctures of
that organ have sometimes been made without accident. Jourel supposed
that he had done it; and it was in reality practised by Baynham, by the side of
the rectum, in a case in which he had vainly endeavored to replace the uterus
by passing his hand into the rectum; the retroversion had existed about six
weeks, and the gestation had reached the sixth month. The puncture reduced
the volume of the uterus, which was then replaced without much difficulty—
labor commenced a short time afterwards, and was terminated twenty-four
hours after the operation. The fetus was of the usual size at six months, and
the trocar had wounded the abdomen. There was afterwards a discharge of
purulent matter both from the vagina and rectum, mingled with membranous
eschars, resulting probably from an abscess of the recto-vaginal septum; but
notwithstanding this, the woman was well in six weeks after the accouchment.
Professor Boyer reports a second successful case from the collection of thesis of
the faculty of Paris. Previously to resorting to this operation, it will be advisable to attempt to perforate the membranes of the fetus, as advised by White, Hamilton, Dewees, Joussel, &c. but attempted without success. For this purpose, a curved male catheter may be employed, so bent as to admit of its being conveyed behind the pubis, and into the orifice of the uterus, the point being directed so as to correspond to the anormal position of the organ. As to the section of the symphysis pubis, proposed by Purcell and Gardien, abstraction made for its dangers and inconveniences, it is doubtful if it possesses the advantages supposed. It should be remarked, that the main obstacle to reduction, is the concavity of the sacrum, and the sacro-vertebral promontory. These cannot be changed by symphseotomy and it would be necessary to make a very wide separation of the bones in front, to furnish to the uterus, in that direction, sufficient space to enable it to redress itself.

"Should we be justifiable, in desperate cases, in making an opening into the abdomen for the introduction of the hand, for the purpose of replacing the uterus? This operation would be less formidable than the Casarian section; but it is doubtful if it would succeed in all cases, inasmuch as in the case opened by Hunter, it was necessary to separate the symphysis considerably before the organ could be dislodged."

Several cases are detailed illustrative of the different varieties of retroversion, some of which occurred in the unimpregnated uterus. In one it was brought on by habitual constipation; and the disturbance excited by the displacement of the organ was for a long time mistaken for those of pregnancy. The rectum having been unloaded of the feces which had accumulated in it, the uterus resumed its natural position. In another individual, it was owing to a malformation of the vagina, in two to a relaxation of the ligaments; and in two others, to a tumefaction of the organ, by which its weight and volume were increased.

We shall pass over the chapter appropriated to the consideration of hernia of the uterus. It is brief and contains nothing new or very important.

That which is devoted to the description of the anormal attachments of the organs, presents more interest, inasmuch as the conditions of which it treats have been greatly neglected by writers. One of the principal causes of these adventitious attachments is peritoneal inflammation. Reflected, as it is, over the whole extent of the fundus of the organ, as well as a part of its body, and likewise the fallopian tubes, this membrane, whenever it becomes inflamed from any cause, will be very apt to contract adhesions with the adjacent parts, which may give rise to serious inconveniences. These adhesions may be developed at any period of life, and the inflammation which is their efficient cause may be excited by a diversity of circumstances. It is stated by one of the authors, from the result of observations
made in one of the hospitals of Paris, that it is frequently brought on in young girls by the practice of masturbation. Any thing, however, which is capable of giving rise to metritis or peritonitis may occasion these adhesions. Hence they frequently supervene upon difficult menstruation, tedious and difficult labors, or injuries of any kind inflicted upon the uterus, or the surrounding parts. Wiedmann has reported a case, in which adhesions were formed between the arch of the colon and the anterior part of the uterus, in consequence of a violent peritonitis which succeeded a difficult and painful labor. The individual died about the middle of the term of utero-gestation in her next pregnancy, of the symptoms of strangulation of the intestines.

These anormal adhesions may not only give rise to sterility, by closing up the extremity of the fallopian tubes, but where that does not take place, to consequences still more formidable, in the event of the uterus becoming impregnated. Under these circumstances, in proportion as the organ enlarges and changes its position, violent pain and inflammation may be excited by the forcible distension or elongation of the adventitious attachments, and the individual may, at the same time, suffer from a dragging or lacerating sensation within the pelvis, the formation of extensive abscesses in the vicinity of the vagina and rectum, and even death. Most generally, however, the disturbance dependent upon the condition, gives rise to abortion before the mischief advances so far. The diagnosis of these conditions may be established upon the following considerations.

1. The finger, carried into the vagina, distinguishes the uterus depressed, obliquely or otherwise inclined, but always solidly fixed in the direction of its inclination—sometimes it is fixed by its entire circumference; occasionally by a single point. One of the round ligaments shortened and engorged, may bind down the corresponding part of the uterus, so as to render its ascent unequal, and give the organ an oblique inclination; or it may even tip down the uterus so firmly, as to occasion a premature labor; as early even as the seventh month—an example of which we have cited elsewhere. 2. The antecedent conditions; as for example metritis, peritonitis, difficult menstruation, abortion, difficult labors, wounds, and abscesses within the pelvis, &c. will also furnish presumptive evidence of the existence of adventitious adhesions. These attachments occur most frequently in women of a lymphatic or scrofulous temperament,—and in those who are liable to constipation and irregularity of the digestive function.

"Will it be possible to destroy or break up these adhesions? this is not probable; but it will be possible at least, by an appropriate antiphlogistic treatment, to prevent their development, where they are as yet merely threatened; and some facts which have fallen under our observation, incline us to believe, that by the employment of mercury, a resolution may be obtained of those which
have not yet acquired all their solidity,—those which are merely in the act of being formed, or in other words, of the chronic inflammation of which they are the product."

When the uterus has attained its maximum of distension, under the influence of the evolution of the fetus, adhesions may form between it and the omentum, the intestines, and other parts with which it is in relation, which, although not announced by any unpleasant symptoms, during the period of gestation, may nevertheless give rise to serious consequences during labor, or after it has been completed. Here the uterus, in consequence of its newly formed connexions, may be prevented from contracting to its natural dimensions, or from descending into the cavity of the pelvis, or if it should be able to thus contract upon itself, and descend, the organs with which it is united will be put violently upon the stretch; great pain and uneasiness will be experienced by the individual, and even peritoneal inflammation and death may ensue. As moreover, the complete contraction of the uterus is necessary to close the orifices of the uterine sinuses, the obstacles which prevent it from taking place may give rise to a mortal hemorrhage. Baudelocque met with a case which terminated fatally during the first stage of labor, in consequence of an attachment of the omentum to the anterior lateral part of the uterus, by which the stomach and the neck of the colon were violently dragged from their natural situation. Death was preceded by vomiting, diarrhea and syncope. Sometimes, however, the distress awakened by these preternatural adhesions of the uterus is less considerable; the individual merely complains of a dragging uneasy sensation within the abdomen, with disturbance of the digestive function, which frequently continues for months, without the nature of the malady being known or suspected.

The uterus is also liable to numerous alterations of its form and volume; as for example adhesions or a complete obliteration of its mouth, elongation of its neck, incurvation of some part of its body, a folding in of its walls, inversion, &c. &c. all of which may occur under particular circumstances, and occasion considerable inconvenience. It is somewhat remarkable, that in many cases, where the mouth of the uterus seems to be perfectly closed by adhesions, conception takes place, as under other circumstances. Numerous cases of this kind exist on record, in which, although the woman conceived, there were such extensive adhesions as to render delivery impossible by the unassisted powers of nature.
Inflammation may either attack the peritoneal covering of the uterus; or the substance of the organ itself; and in either case the disease may proceed from the same causes. Inflammation implicating that portion of the peritoneum which is reflected over the surface of the uterus, the fallopian tubes, and the ovaria, generally gives rise to a copious exudation of coagulable lymph, which becoming organized, adventitious adhesions are formed between the parts with which it is in relation. The uterus, the tubes, or the ovaria, may contract adhesions with the other organs contained within the abdomen, and all the mischievous consequences may be induced which have been detailed above. This inflammation most commonly proceeds from some inordinate irritation of the uterus, either taking place during labor, or at any other period, from the mechanical influence of instruments, or injuries inflicted in turning the child to deliver by the feet. The great determination of blood which is invited to the uterus, during the whole period of gestation, and the important changes which take place in the parts immediately after delivery, dispose the peritoneum, in an especial manner, to become thus implicated. These circumstances, together with the frequent evidences of peritonitis observed in the bodies of those who have died of puerperal fever, have induced some pathologists to refer puerperal fever to an acute inflammation of that membrane. However true this may be as a general rule, there are certainly exceptions to it. Professor Wenzel has very correctly observed, that in some individuals who have fallen victims to puerperal fever, no evidences of peritonitis have been discovered, while in others in which the peritoneal inflammation has been so considerable as to give rise to a copious deposit of coagulable lymph, and the formation of extensive adhesions, none of the symptoms of puerperal fever have been manifested.

Inflammation of the uterus itself is of less frequent occurrence than that of the peritoneum which is reflected over its surface. It is indeed a little extraordinary, that an organ so abundantly supplied with blood vessels, and performing a part so important in the economy of the individual, should be so seldom affected in this manner. From the period of childhood up to that of puberty, inflammation of the uterus seldom occurs, and has scarcely been noticed, except as a consequence of mechanical violence. Even after the latter stage arrives, notwithstanding the periodical fluxion which takes place to the organ at each menstrual effort, and the increased vitalism which it ac-
quires under those circumstances, it is a rare occurrence for it to take on active inflammation. Nor is that condition often excited by the irritation and exalted vital activity which takes place during pregnancy,—which is excited during the violent contractile efforts concerned in delivery, the influence of instruments, or the injury inflicted by the manual assistance afforded by the accoucheur. From all these considerations, it may be inferred, that the uterus is less liable to inflammation, than we should, a priori, be disposed to infer, judging from its vascularity, and other properties of its structure.

Inflammation of the uterus may be considered, according as it attacks the unimpregnated organ, or succeeds parturition. It will be seen, from what has already been stated, that it is of rare occurrence. Dr. Hooper states, that he had never witnessed the disease except after delivery; and Professor Wenzel represents it as an occurrence so rare, that it seldom takes place except as a consequence of the long continued influence of mechanical or other irritants; as, for example, foreign bodies lodged in the vagina, irritating injections, &c.; and even these he thinks are much more likely to produce chronic, than acute inflammation. For this reason, the mouth and neck of the organ are more frequently affected than any other portion; and where it occurs after delivery, this can be easily explained from the fact, that this part is most exposed to violence inflicted by instruments, by the hand, used in effecting delivery, or by the passage of the child. But even here, the inflammation does not usually extend beyond the point first involved; and it is rare that it terminates fatally, except where a predisposition to puerperal fever exists. The whole organ is seldom involved, but it should be remarked, that in consequence of the kind of paralysis or torpor in which it is placed after delivery, a very slight degree of inflammation will sometimes terminate in an extensive gangrenous condition of its substance. Wenzel, p. 44.

Besides the ordinary consequences of inflammation, as abscess, gangrene, &c., the uterus is liable to the development of various tumors, or morbid growths, which are enumerated, as follows, by Dr. Hooper:

1. Those which are produced by an increase of the natural substance. 2. Such as are formed by the deposition of new materials. 3. Such as are formed of several morbid structures. 4. Morbid dilations of the natural cavities, canals, or blood vessels. 5. Such as are produced by extraneous bodies; and 6, those which are caused by parasitical animals.—p. 4.
Wenzel, Boivin, &c. on Diseases of the Uterus, &c. 421

Under the first head, Dr. Hooper includes hypertrophy, which he represents as being sometimes attended with hardness, softness, and with the co-existence of other diseases. In some instances, the ovaria are also enlarged, without any change of structure; and he remarks, that he met with one case in which only one of these bodies existed, which was more than twice the natural size, but did not present the least appearance of disease.

Under the second head, are included cephaloid, haematoid, melanoid, cartilaginous, bony, fatty, scirrhous, fibrous and cellular membranous, and honey, suet, and cheese-like, developments. The third head includes tumors of a mixed character; the fourth, pneumatoma, or flatulent tumors; the fifth, extraneous substances; and the sixth, parasitical animals, as the oxyurus vernicularis, ascaris lumbricoides, acephalocystis, &c.

All these conditions are represented in the plates in a masterly style of graphic delineation. The plates are true copies from nature, and the coloring is executed with a strict regard to accuracy. The text, though sufficiently perspicuous, is not exactly what we have a right to expect in the present advanced stage of pathological science. Many of the lesions are described in a brief and unsatisfactory manner, and no distinction has been drawn between the transformations, properly so called, and the heteroclyte developments. The beauty and excellence of the plates, however, compensate in a great degree for these defects.

Having already occupied considerable space with our analysis, we shall be obliged to bring our remarks to a close, without noticing a number of important and interesting topics which are discussed in the works under consideration. This reason will oblige us to pass over a large proportion of the subjects treated of by Professor Wenzel and Dr. Hooper, and the entire second volume of the work of Madam Boivin and Professor Dugès, which is far more extensive than the first, to which our analysis has been more particularly directed. The first portion of the second volume is appropriated to the discussion of the subjects of cancer of the uterus, which is described under its various forms and modifications; inflammation of the uterus, both acute and chronic; ulceration and granular inflammation of the os tinesæ; leucorrhœa and uterine catarrh; metrorrhagia, dysmenorrhœa, amenorrhœa, hysteria, hysteralgia and nymphomania. The second part is taken up with the consideration of the lesions of the appendages of the uterus, including the ovaria, fallopian
tubes, vagina, and vulva. These are described in nearly the same order as the diseases of the uterus itself, and this part of the work is not less valuable than the first. As we propose, however, as soon as circumstances will admit, to furnish our readers with a review of this portion of the labors of our authors, we shall here close our analysis.

In taking leave of the authors whose labors we have been examining, we are neither disposed to award unqualified praise, or to pass sentence of unconditional condemnation. The work of Professor Wenzel contains much interesting matter on the subjects of which it treats, and especially in relation to the degenerations of the uterus. The engravings are beautifully executed, but would have been much more expressive if they had been colored. The plates accompanying the work of Dr. Hooper, which are colored with great care, are amongst the best specimens of delineations of morbid structure which we have seen from the English press. With the text we have already stated we are not entirely satisfied. The work of the French authors embraces a wider range than either of the others. The plates which accompany it are commendable in many respects, but we should have been much better pleased with them if they had been less vividly colored. The materials of the work are derived from a most extensive field of experience, and may be regarded as constituting a valuable accession to this department of pathology. A little more attention and discrimination in the selection and condensation of them would have tended, in no trifling degree, to enhance the value of the present treatise; and if it had been reduced to one-half its size, by a judicious curtailment of the numerous cases which unnecessarily swell its pages, it would have been read with more satisfaction and advantage, while it would have been in no wise deprived of any of its value. The style, too, is in many cases obscure, and a little confused. But where the ladies are concerned, we must not be over scrupulous. Gallantry alone should prompt us to look, with a lenient eye, upon many trifling defects. In the present case, however, it will not be necessary to call up this principle of human action; for the work itself, notwithstanding the faults to which we have adverted, possesses sufficient redeeming qualities to entitle the authors to our commendation, and we can confidently recommend it as one of the best we possess on the subjects of which it treats.
Art. XII. A Memoir on the Practicability of Dividing the Stricture, in Strangulated Hernia, on the outside of the Sac; with cases and drawings, By C. Aston Key, Sen. Surgeon to Guy's Hospital, and Lecturer on Surgery, &c. London. pp. 161.

The distinguished author of the work before us remarks, in his preface, that, notwithstanding the vast accession which has been made to our knowledge in relation to hernia, by the labors of Sir A. Cooper and others, within the last twenty-five years, yet "the operation continues much the same as it was fifty years ago." Improvement in this department of surgery seems, therefore, to be wanted, and this will, in the opinion of our author, be in some degree accomplished by making known the advantages which he has ascertained to belong to the mode of operating which he advocates, and which he has found more successful and less difficult than he had anticipated.

The author first remarks on the danger attending the ordinary operation for strangulated hernia; the annals of surgery will shew, that often, while the operation affords the only hope of relieving the intestine from impending gangrene, it almost certainly leads to the destruction of the patient.

Mr. Key has recently witnessed the unsuccessful results of a series of operations in cases in which circumstances seemed favorable to success, but which resulted fatally because of the necessarily formidable character of the operation itself. It is justly remarked, that this unhappy result is often owing to the operation not being resorted to at a sufficiently early period, but this is often not at the surgeon's option, inflammation having, in most cases, supervened before the patient is seen by him.—In females particularly, from motives of delicacy, the progress of disease is concealed till circumstances are unfavorable to success by the ordinary operation.

Our own observation will abundantly confirm this remark. The writer of this article has, within not a long period, performed the operation for strangulated femoral hernia, on females, in five instances, and in every instance, although no time was lost by the surgeon, was the intestine found gangrenous or highly inflamed, and the result fatal. He admits that a wound of the healthy peritoneum is not necessarily, nor generally attended with unhappy results, but such is not often the condition of this membrane when cut for the relief of hernia. Mr. Key,
who was regarded as a successful operator, lost five cases of hernia out of fourteen, exclusive of cases of gangrene. He reports at length thirteen fatal cases, which have occurred in Guy's hospital within the last few years, taken in succession from the report books of the hospital. Most of them died from peritoneal inflammation, caused by the exposure of the bowels to the air, cold, light, handling, &c. the inflammation being generally found not to have its origin in the incision of the sac, but in the peritoneal surface of the intestine.

The author now proceeds to show how far the operation which he advocates, is practicable in the different species of hernia, the advantages which it promises, and the objections which may be urged against it.

The operation was first performed by Petit, 1718, and the patient, though aged, was well in eighteen days.

Monro, in 1788, began to recommend the practice of dividing the stricture without including the neck of the sac. He gives three successful cases in which he practised it, and advocates the operation with zeal and ability. Monro extended the operation to all descriptions of hernia.

In 1803, Sir A. Cooper divided the stricture externally, in a case of large inguinal hernia, in which case he found it necessary to carry the bistoury under the edge of the transversalis and incise it. The patient had nearly recovered in a week. He performed the same on a large umbilical rupture in 1807, by merely making a small incision on the neck, dividing the fascia by passing his bistoury between the sac and it, and then passing his knife between the sac and the umbilical edge of the linea alba, incising the latter upward. In another case he performed Monro's operation. The opinions of Boyer and others he also quotes as favorable to the operation, under certain circumstances.

It is no small recommendation of the external operation, that if the operator should fail in effecting his first object, no mischief results, but he may proceed to relieve the stricture by opening the sac. Or he may pursue a middle course—making a small opening in the sac below the ring, passing a director up to the stricture, and cutting upon it from without.

Sir A. Cooper expresses the opinion that the operation will be gradually introduced into general practice when it has been fairly tried, and will be found, if performed early, to be free from danger, and attended with no unusual difficulty." He says that it causes less danger of wounding the bowel, and if the epigastric artery be wounded, the blood cannot flow into the belly.
Key on Strangulated Hernia.

He strongly dissuades the surgeon from opening large saes, on account of the injury which the intestines must suffer from the handling necessary to affect their reduction, and the difficulty of returning them into the belly.

Mr. Key alludes to cases in which, the ordinary mode of operating being practised, the patient at first appears to be doing well, but after the lapse of two or three days, the powers begin to sink—pulse small—bowels uneasy—tongue dry and coated—death ensues—the strangulated bowel is found dark, lacerable, and the surrounding parts inflamed. Such results are generally in feeble patients, whose powers are unequal to the restoration of the healthy circulation in the diseased part, slight inflammation gradually ending in gangrene. The exposure of a bowel, under such circumstances, must necessarily render this result more certain, and often turn the scale against the patient.

Sometimes the operation by which the bowels are exposed, in sensitive patients, seems of itself at once to prostrate the powers of life and cause death even without inflammation.

Mr. Key remarks upon the injury inflicted by the too rude and long-continued use of the taxis. This is sometimes attended with unhappy consequences, even when reduction is accomplished, but will be much more frequently so if the bruised viscera be exposed by the opening of the sac. We know the unpleasant consequences which result from exposing a common contusion, and that, if the integrity of the external parts be preserved, they are nothing so serious.

In the external operation not only is the blood not liable to flow into the belly, but the arteries are less exposed to injury, for the knife is carried before the vessels.

Petit denies that this operation is difficult, if executed with his direction. To the objection, also, that by it fluids in the sac are returned into the belly, he says that these fluids are precisely such as are always returned by the taxis, being the secretion of the membrane, and absorbed without difficulty. It has been urged, too, that if gangrene result after the operation, the fatal result must be more certain; but Petit does not advise the operation in cases in which such result is probable.

The author proceeds to consider the objections urged by Sharp, Heister, Le Dran and Richter, who to the above add, that, sometimes within the sac there are adhesions that require to be separated—that the external operation is often impossible from the manner in which the stricture is concealed by the body of the tumor—that the patient has less chance of a radical cure—that
relief is not at all practicable by it when the stricture is in the neck of the sac.

The difficulty of an operation ought never to forbid its performance, if it only be practicable and possess decided advantages. But the difficulty of the operation is greatly over-rated. It is erroneous to suppose that a more extensive division of the stricture is required when the sac is not opened, for when the cut is made from within, parts (the sac &c.) are cut, which are not often concerned in the stricture. A very slight cut in the constricting band is sufficient.

If, from adhesion, the bowel refuse to return after the external operation has been performed, the operator has only to open the sac and proceed as usual. As to the necessity of separating recent adhesions which may have formed between different portions of bowel; such adhesions are regarded by Mr. Key as the effects of fatal inflammation rather than the cause of death.

In irreducible intestinal herniae which become engorged with their contents, and thus strangulated, he thinks that the bowel would be as effectually relieved by the external operation as by the internal.

In regard to the danger of returning mortified parts, Mr. Key thinks that the diagnosis of those cases in which gangrene has commenced, may be made with sufficient accuracy to direct the surgeon's practice. Where gangrene is complete, the fact will be obvious, by signs well known to our readers;—where probable, but not certain, then the leaving of the sac entire is the very means by which the gangrene that otherwise would certainly occur, may, perhaps, be arrested. Sometimes merely a small eschar will then separate and fall into the canal of the intestine.

Mr. Key considers stricture by the neck of the sac to be of very rare occurrence, but when it does occur, the sac must of course be opened.

Our author now proceeds to detail his own experience of the operation, and the steps by which it is executed in the three most common forms of the disease.

In the first instance in which Mr. Key attempted the operation, he failed of accomplishing his object, owing to inexperience of the operation and to a very large portion of omentum which concealed a fold of small intestine at the posterior part of the sac. He divided the stricture externally, but could not return the hernia, and was compelled to open the sac. The event fully justified his fear of opening the sac, for inflammation
of the peritoneum soon prostrated the powers of life, and caused death.

In a second instance, he failed to effect the division of the stricture, owing to the tumor being one of the direct inguinal kind, and having the stricture formed by the fibres of the transversalis tendon, girt with extreme tightness around the neck. He was here compelled to open the sac, and his patient died.

In his next case he was completely successful; first exposing the fascia propria, then making a small opening in it, passing his director beneath it up to the stricture, then by slightly dipping and pressing forward the point, passing it beneath the stricture and easily dividing it with the bistoury. The contents were returned with great facility, and the patient's recovery was exceedingly rapid. Two other cases, with similar results, are also related.

Our author's method of accomplishing the operation in femoral hernia, is the following. Instead of the inverted x incision, he makes one straight incision, at right angles to Poupart's ligament. The external coverings are penetrated in the usual way. The fascia propria being divided, the director is to be insinuated beneath the fatty matter (which often assumes the appearance of omentum, beneath the outer layer of this fascia,) up to the inner part of the neck, and then its point is made to dip a little, and to glide beneath the stricture by an onward movement. The director used for this purpose is one of peculiar form. The blade is below the level of the handle and is slightly curved and flattened. It appears, from the plate, to resemble a common dinner fork having a flat piece of steel instead of the tines, but curved as they are, and grooved along the middle. The stricture is divided by conducting the bistoury along the groove, and in doing so to a sufficient extent, there is no danger of wounding the cord if the case occur in the male.

In inguinal hernia, the incision being made higher than usual, will allow the stricture to be divided at the internal, or the external ring. It should begin on the neck, and be continued down an inch and a half. A small opening should be made in the tendon above the ring, and the director, being introduced into this, will indicate whether the stricture is at the internal or external ring. If it be at the external it is a very simple process to pass the director beneath and divide it. But if it be at the internal, as is most frequent, the opening in the tendon must be enlarged—the margin of the two muscles exposed, and
the director passed under the transversalis till it reaches the stricture.

In conclusion, we think that in this memoir, Mr. Key has rendered essential service to the profession and to humanity, and we have risen from the perusal of it with the conviction and regret that we at least have sometimes performed the more common operation, when we ought to have executed that advocated by our author.  

N. R. S.
BIBLIOGRAPHICAL NOTICES.

ART. XIII. An Essay to prove the contagious character of malignant cholera, with brief instructions for its prevention and cure, by Bernard M. Byrne, M.D. 8vo. pp. 156, Baltimore, Carey, Hart, & Co.

So much has been said and written of late on the subject of cholera, and such a large proportion of the medical men of our country have had a melancholy opportunity of investigating its characters, studying its laws, and becoming familiar with its propagation, that it will perhaps be regarded, by most of our readers, as an act of supererogation on our part, to give it even a passing consideration. Truth, however, should be the object of all our inquiries, and no means should be neglected which can lead to its attainment. We have, it is true, acquired much important information relative to the pathology and treatment of cholera, but much obscurity still hangs over some of its attributes. We know comparatively nothing of its origin, and the ideas we have formed of the laws of its propagation can scarcely be admitted to be any thing more than mere conjectures, founded upon deceptive analogies, and unsupported by any array of positive facts. Nearly the whole domain of the elemental world has been ransacked for the purpose of discovering some explanation of the causes which originate and disseminate the seeds of this direful pestilence;—all the influences, both celestial and terrestrial have been called alternately into requisition, and lost and dismayed in the difficulty of the subject, almost every individual has worked up in his mind some pretty hypothesis, which clears up all the difficulties, simplifies all its intricacies, and to himself at least, renders every thing perfectly clear and intelligible. Unfortunately, it does not carry the same conviction to others. Our intellectual vision is so endowed, that we can only see objects in our own way. Hence, it is not to be wondered, that where they are a little obscured by the mists of preconception, the impressions which they convey to our cognizance should be a little modified or perverted by the medium through which they have to pass. Our intellectual organs may be regarded as undergoing a kind of predisposition, and according to this will be the character of our ideas upon different subjects.

Applying these principles to the subject under consideration, we find that from some modification of this kind,—some previous discordant bias of our psychological faculties, we have as many opinions relative to the origin and modes of communication of cholera, as there are powers capable of being conjured up by a fruitful imagination to give them a shadow of support. By some, all the difficulties are ascribed to the operation of some obnoxious imponderable exhalation from the earth, so ethereal in its character, that it cannot even be discovered by the all-searching powers of chemical analysis—by others to similar emanations from the heavenly bodies, poisoning the atmosphere, and loading it with the elements of destruction. Some to electrical influences exercising pernicious modifications upon the vitalism of our bodies,—the vicissitudes of the seasons; the accidental conditions of the atmosphere, as regards heat, moisture, and its other sensible qualities. Finally, another par-
ty, not pretending to account for the origin of the disease, or attributing it to some one of the causes above enumerated, have called to their aid the instrumentality of human contagion, to explain its propagation or extension. We have no inclination at present to enter into any discussions in reference to the comparative claims of these several opinions. The discordancy between them, at once shews the flimsiness of the data upon which they are predicated, and where there are no more facts which we can erect into postulates for our arguments, we shall not be apt to deduce any very satisfactory conclusions from them. As however, Dr. Byrne has ventured to approach this thorny subject, and has conceived himself justified, by all the arguments which he has been able to bring to bear on the question, in concluding that cholera is communicated by the agency of human contagion, we shall attempt to follow him through some of his arguments, and determine, if possible, how far they are entitled to confidence.

The question is discussed by him under the following heads: Contagion in General; Progressive Atmospheric Influence; Local Atmospheric Influence; Terrestrial Emanations; Human Intercourse; General and Particular Facts; Objections of the Non-Contagionists; Evils of the Doctrine of Non-Contagion; and finally, the Prevention and Treatment of the Disease.

We shall examine the leading arguments advanced by the author upon a few of these points:

"All diseases may be divided into two classes; specific and accidental: specific, those which have a poison for their remote cause; accidental, such as result from any cause (except poison) which disturbs the balance of health. My remarks here shall be confined to specific diseases, as they only have relation to the subject.

"The class of specific diseases may, as regards etiology, be divided into two orders: progressive and local; progressive diseases have animal poisons for their remote cause, and are all contagious; or in other words, are communicable, either mediately or immediately, from one human body to another. The poisons which produce progressive diseases are very numerous, and for the most part intangible. Of their origin, and essential nature, we are entirely ignorant; for no chemical test can reach them, and it is only by their effects that we are apprized of their existence. Each one of them is specified by its own distinct laws; and there is no law common to all of them, except that of communicability. Even this law is so modified in each disease, that there are no two in which it acts precisely alike. In some it is necessary, in order to communicate the poison, that it should be brought into immediate contact with the body; while in others it may be communicated to a considerable distance through the atmosphere. Syphilis, herpes, gonorrhœa and itch, afford examples of the former; smallpox, measles, hooping cough, and mumps of the latter. But it is not merely as regards the distance through which these poisons are communicable that this law differs; it differs also as regards the power of communicability. Some of them will affect almost every individual that comes within the sphere of their influence, while others are extremely limited in their action. For instance, smallpox spares but few, while mumps affects but few. There are in short, as great differences both in the manner and degree in which contagious diseases are communicated, as there are differences in the volatility and intensity of their respective poisons."

We have selected these observations, to shew the sentiments of the author in regard to the distinctions between those diseases which proceed from common, and those which derive their origin from specific, causes, or animal conta-
gion. The principles expressed are now generally acknowledged, and require no comment.

In another place, however, an opinion is expressed to which we cannot subscribe.

"Whenever, therefore, we see a disease go abroad from the place of its origin, we have a prima facie evidence of its contagiousness;—for in the present state of our knowledge, there is no other mode, than that of human intercourse, by which the progress of any disease can be accounted for."

Now, we are prepared to assert from the result of positive and indeed universal observation, that a disease "may go abroad from its place of origin," without either the instrumentality of contagion or human intercourse. Influenza occasionally pervades whole continents in this manner, and many other examples to the same effect might be adduced.

But we shall pass from these preliminary considerations to the special reasonings upon which Dr. Byrne predicates his conclusions. The arguments which are arranged under the head of "General Facts," are founded upon the following propositions. 1. The power of progression possessed by cholera. 2. The impossibility of assigning a reason for its visiting the large towns by forced marches, and afterwards ravaging in detail the smaller places which it had overstepped, except by referring to the agency of contagion. 3. The irregularity with which cholera advances, although entirely uninfluenced by the winds, can be reconciled with the doctrine alone. 4. The preference which cholera manifests for those routes by which there is the greatest intercourse. 5. The irregularity of its periods of increase and decline in the different places which it visits.

We cannot follow the author through all the reasonings by which he endeavors to support these propositions. In the first place, we think his postulates are unfounded, at least in part, and as we can, to our own satisfaction, explain all the difficulties growing out of the list of facts which he has enumerated, upon the operation of common causes, we do not feel the necessity of calling for the assistance of contagion, the existence of which, in this disease, seems to us to be disproved by a mass of facts infinitely more formidable than those by which it is attempted to be sustained. Without pretending, therefore, to infallibility, or more penetration than our neighbors, we object to the conclusions of the author.

Under the head of particular facts, Dr. Byrne has collected together a diversity of materials from various sources, deduced for the most part from the accounts of the first appearance of the disease in different and remote situations. Many of these appear at first sight to corroborate his views; but many collateral circumstances have been omitted, and besides a large proportion of the statements have been drawn from newspaper paragraphs, and the private correspondence of individuals, many of whom, not being members of the medical profession, cannot be considered as competent to give a fair representation of all the facts. The following are some of the statements upon which the author predicates, in part, the conclusions which he has adopted.

"Introduction of Cholera into Folly Island.—Sometime in October, 1832, the brig Amelia, with one hundred and eight persons on board, sailed from New York, where cholera was still prevailing, for New Orleans. On the sixth day out, sickness commenced on board, some dying in a few hours, and others lingering for several days. The physicians on board, pronounced the disease to be cholera, and twenty deaths occurred at sea. On the 30th of the
same month, the brig was stranded on Folly Island, which is situated about ten miles from Charleston; and in a day or two afterwards the disease began to spread among the inhabitants of that island. The persons employed about the wreck were the first attacked, and the most severely afflicted; and it will be seen by the following extract, taken from the official report of the Intendant of Charleston, dated the 7th of November, that the authorities were so firmly convinced, that the brig was the source of the disease, that they ordered both her and her cargo to be completely consumed.

"...The wreckers employed about the vessel, and cargo of the Amelia, have suffered much: six out of seven deaths which occurred on the 6th inst. being of their number. The Intendant, Board of Health, and the attending physician on the island, came to the conclusion that the wreck, containing a large quantity of infectious matter, has essentially contributed to the propagation of the malady; if in fact almost every case that has occurred be not distinctly owing to that cause. Accordingly orders were given by the public authorities to have the vessel and cargo burned as completely and effectually as possible, which was accordingly done."

We have no personal acquaintance with the circumstances here stated, and as they are predicated upon the authority of the Intendant and the Board of Health, we are to presume that they are authentic. The author, however, represents that in a day or two after the brig stranded, "the disease began to spread among the inhabitants of the island." If our memory serves us correctly, the island in question is destitute of population, at least of any who would be likely to become the victims of cholera under the circumstances stated. We are inclined to think, that there is one family resident at the point occupied by the light-house, and who have the latter in charge; but without being able to speak very positively, it is our opinion that this is remote from the situation of the brig. We also have been informed that Capt. Milne has a summer residence on the island, which was surrendered up for the use of the sick and their attendants. So far then, as this population was concerned, we believe there was no spread of the disease among the individuals who composed it. That the wreckers suffered from cholera we will not deny—neither will we assert that they did not contract the disease by contagion; but it is our opinion that they did not. We do not consider such an assumption at all necessary to explain the circumstances. It is known to Dr. Byrne, as it must be to all the members of the medical profession, that the same occurrences are frequently observed in other diseases which are confessedly not of a contagious character. At page nine, the author speaks of intermittent and yellow fevers, as diseases dependent upon local minasmtas, and which he states scarcely ever extend a mile from the place of their supposed origin. We therefore take it for granted, that he does not believe the latter to be contagious. If this be granted, we think he will not pretend to deny, that precisely the same circumstances have been observed in yellow fever, that he has brought forward to prove the contagiousness of cholera. It has happened again and again, that wreckers, or even common laborers, who have been employed in discharging the cargo from the hold of a ship, from some hot latitude, as for example the West Indies, have contracted yellow fever and died. If then the facts adduced by Dr. Byrne establish the contagiousness of cholera, so is yellow fever contagious, and so are many other diseases, to which, in the present state of our knowledge, no one thinks of referring such an attribute.

Several other "particular facts," have been collected by Dr. Byrne; but as
the Folly Island case has always appeared to us to present the strongest arguments in favor of the doctrine of contagion, and as we deem it insufficient, we shall not quote any other examples.

The author next enters into a refutation of the objections urged by the non-contagionists, which he enumerates under the following heads:

"1. That the disease appears in places where it is impossible to trace it to its introduction.

"2. That the strictest quarantine regulations have often times proved ineffectual in excluding it.

"3. That many persons may be exposed to its poison without contracting the disease.

"4. That its sudden increase and decline are incompatible with the laws of contagion.

"5. That it may be contracted more than once by the same individual.

"6. That there are no pustules, nor any other ostensible source from which the poison may be supposed to emanate."—p. 77.

Dr. Byrne has examined each of these propositions in succession, and attempted to answer the objections to his theory which grow out of them. We cannot follow him in his arguments, but suffice it to say, we do not deem them at all conclusive. The four first, especially, we think have been shewn by the whole history of the epidemic, wherever it has prevailed, to be unanswerable. They cannot by any force or ingenuity of argument be reconciled with the idea of contagion, and are so conclusive against it, that a majority of those who at first contended that the disease was propagated by the agency of that principle, have been compelled, under the mass of accumulating facts, to abandon their ground.

We must here close our remarks. We have differed from Dr. Byrne in opinion, and objected to the legitimacy of his conclusions. We are, however, not the less disposed to award him the meed of praise for the manner in which he has conducted his arguments, and the honorable and high-minded principles by which he has been actuated. We know him to be a warm and zealous seeker of truth, and equally desirous of searching out and exposing the secret lurking places of error. Though engaged, as we think, in the present instance, in advocating a cause which cannot be sustained, he has certainly argued with ability. His book is written in a perspicuous and manly style, and while we are opposed to its conclusions, we most cheerfully recommend it to the candid examination of those who are interested in the question. We cannot suffer the present opportunity to escape of felicitating ourselves upon the numerous indications, furnished by the medical men of Baltimore, of an earnest desire to improve the profession, and extend the bounds of its usefulness. A revival, if we may be allowed the expression, has taken place amongst the cultivators of medical science, and aided by the active co-operation of our neighbors, what has already been done in our own city and state, is every day displaying its beneficial influence.
ART. XIV. Illustrations of the Elementary forms of disease; by ROBERT CARSWELL, M. D. Professor of Pathological Anatomy in the University of London, &c. Fasciculus 3.

Principles and Illustrations of Morbid Anatomy, adapted to the Elements of M. Andral, and to the Cyclopaedia of Practical Medicine, being a complete series of colored lithographic drawings from originals by the author, &c. &c. by J. HOPE, M. D. F. R. S. Physician to the Mary-Le-Bone Infirmary. Parts, 1, 2, 3, 4, 5, 6.

In the previous number of this Journal, we had occasion to notice favorably the first and second fasciculi of Mr. Carswell’s illustrations of the morbid alterations of the different organs: the third fasciculus is now before us, furnishing the most satisfactory evidence that this work will not prove inferior to any similar designs. The text, continuing the subject of Carcinoma is distinguished for its perspicuity, and impresses us at once with the conviction, that its author is fully competent to the task upon which he has entered. In this number, the physical characters of carcinoma are considered under the form, volume, color, and consistence, which it presents in the different tissues and organs of the body in its several periods of developement, with its physiological attributes.

The accompanying plates are executed in the most masterly manner, and colored with the utmost care and precision, presenting a most beautiful delineation of the various forms of carcinomatous degeneration of the organic textures. Plate 1, exemplifies the several varieties of Scirrhoma, viz. Scirrhus, Pancreatic Sarcoma, Laraceous tissue, and the Gelatiniform cancer, in the Mamma, Lung and Uterus. Plate 2, embraces the varieties of Cepholoma: viz. the common vascular or organized Sarcoma, Mammary Sarcoma, Medullary Sarcoma, and Fungus Haematodes. The illustrations are selected from an ovoid tumor situated in the internal and upper surface of the thigh, and attached by a narrow neck to the subcutaneous cellular tissue, the Mamma, Lung and Cerebellum. Plate 3, represents the carcinomatous deposits upon the peritoneum, in the veins of the stomach, through the structure, and in the veins of the kidney, under the pleura pulmonalis, and in the vena porte and its branches. Plate 4, displays carcinoma as it occurs in the structure of bones. We have briefly alluded to the contents of this fasciculus, and shall leave it with the intention of furnishing at an early period, a comprehensive view of the positions and doctrines inculcated by the author.

We now direct attention to the work of Dr. Hope, which, from the statement set forth in the preface, was suggested by a desire to afford the student in Pathology, that kind of assistance which can alone enable him to pursue the work of Andral with interest and benefit. Like every other treatise on Pathological Anatomy, that of Andral describes what is obvious to the eye, and has been observed by him in autopsic examinations. It is evident therefore, that to derive every advantage from such works, the eye should be permitted to dwell upon a fac simile of the object described in the text. To meet this desideratum, and to render Andral’s Elements, together with the British Cyclopaedia of Medicine, eminently useful, Dr. Hope has undertaken the publication of a series of illustrations in Pathology, in such a form as to render it accessible to every member of the profession, by furnishing it in octavo, and at the smallest possible cost. Six parts have been received, displaying the various lesions of the Lung, Liver, Heart, Stomach, and small intestines. Although the drawings are on a smaller
scale than those usually employed for Pathological illustrations, yet they are executed in so handsome a style, and colored with such care, as to render them fully adequate to the end designed.

A. L. W.

Art. XV. Phrenology, in connexion with the study of Physiognomy. By J. G. Spurzheim, M. D. &c. with 55 plates. To which is prefixed a Biog-raphy of the author by Nahum Capen. Boston, 1833.

This is an American edition of the work which Dr. Spurzheim published in London, in 1826, during his second visit to England. As it is therefore known to the profession, a slight notice of it will be sufficient. To the student of phrenology, it furnishes the most valuable practical illustrations of the science. Reading its pages is like following an able teacher of mineralogy or botany in his rambles in pursuit of the favourite objects of his study, and learning directly from him the application of his principles, his modes of analysis and observation. The present volume furnishes moreover a great body of evidence in support of the general doctrine of phrenology, for his materials are drawn from the impartial and unalterable records of history and the fine arts. Such a work is peculiarly valuable at the present time, when a renewed attention to the subject is likely to be the consequence of a vituperative essay against phrenology and phrenologists, in a late number of the North American Review. This article strongly reminds us of the style and spirit of the celebrated essay published in the Edinburgh Review, in 1815, from which indeed some of its arguments are borrowed. The distinguished gentleman, to whom the Boston criticism is attributed, was perhaps a little out of patience at the rapturous enthusiasm with which some of the inhabitants of that city, received the heretical doctrines from the lips of Spurzheim. If, in his head, marvellousness should be small, and combativeness large, the circumstance will be sufficiently explained.

After some remarks on physiognomy in general, and on the four temperaments as influencing the activity of the cerebral organs, on the varieties of the face in the two sexes, and in different nations, Dr. Spurzheim points out the general plan to be pursued in comparing the development of the different regions of the head, and of the individual organs. He explains the necessity of caution in drawing inferences from the general form of the head, as for example, the sloping forehead, which is sometimes produced by very large perceptive organs, without any deficiency whatever of the reflective faculties. An examination of these topics is succeeded by about forty portraits, accompanied with a biographical notice of each of the individuals represented, many of whom are characters celebrated in history. This part of the volume is exceedingly interesting. The greater number of the portraits were taken from plates in the Cabinet d'Estampes of the great royal library at Paris. The style in which they have been executed by the American artists, does them great credit, and the whole appearance of the work, with the exception perhaps of the paper, will bear a comparison with that of some of the best publications from the London press.

C. J.
1. Anatomical and Physiological remarks on the connexion between the Placenta and Uterus. By M. E. A. LAUTH, M.D.—The mode of union between the uterus and the placenta, and the reciprocal exchange of blood between the mother and the fetus, have long excited the attention of anatomists and physiologists. Neither, however, have succeeded in giving us clear ideas of the structure of these parts, nor of the manner in which the functions that depend upon them are performed. When the discovery of the circulation of the blood was made, an intermediate parenchyma was admitted to exist between the uterus and the placenta, at the extremities of the arteries and the commencement of the veins, as in all other parts of the body. But microscopic observations and injections having demonstrated the non-existence of a parenchyma in the rest of the body it was inferred, from analogy, that there was an immediate continuation of the uterine arteries into the veins of the placenta, and of the arteries of the placenta into the veins of the uterus. It was soon found, however, that it was impossible to inject the vessels of the fetus through those of the mother, and vice versa. The injection thrown into the arteries was always arrested between the placenta and uterus, and formed extravasations, more or less considerable, in the interstice between these two organs, when it had been thrown in with too much force; or it returned by the veins if the injection was sufficiently thin, and the operation carefully conducted. The frequent repetition of these experiments, and always with the same results, only rescued physiologists from one error, to plunge them into another. An immediate connexion between the vessels of the uterus and placenta was no longer admitted; it was now asserted that the arteries terminated by open orifices in the cells situated between the two organs, or in the uterine portion of the placenta, and that the veins there absorbed the effused blood; those of the placenta, to conduct it to the fetus, and those of the uterus, to carry it back to the mother.

In the experiments I have made upon this subject, my first object was to examine what was to be understood by fetal placenta and uterine placenta; portions which, according to modern anatomists, are composed of totally different vessels, the one being the prolongations of the uterine vessels, and the others nothing more than the expansion of the vessels which compose the umbilical cord. Notwithstanding the most minute examinations, I could not discover these two portions, unless the term uterine placenta is applied to that portion of the membrana decidua to which the placenta has become adherent, and which, after its more or less complete separation from the uterus, is expelled with the placenta, the external surface of which it covers. The formation of the membranes decidua in the uterus before the descent of the ovum into that viscus, and even independently of its descent in cases of extra-uterine pregnancy, proves that it is a production of the womb, and that, though the placenta subsequently forms adhesions with the decidua, it ought to be considered as forming a body with it, or as constituting its uterine portion. There does not, then, exist a uterine placenta, such as it has hitherto been described. The membrana decidua, like most false membranes, when it becomes organized, receives numerous vessels, which are the
continuations of the uterine vessels, or which are, at least, in direct communication with them; and, as in all other parts of the body, the final extremities of the arteries are there reflected upon themselves to form the commencement of the veins. The placenta is entirely composed of the successive division of the umbilical arteries upon the chorion, which arteries, having arrived at the extremities of the villosities which cover the chorion, are reflected upon themselves to give origin to the veins, and the trunk which results from their re-union is the umbilical vein. I have frequently seen, without the assistance of the microscope, this termination of the arteries in the veins, in human and animal placentae, of which the blood-vessels had been previously injected. The artery turns abruptly upon itself, to be changed into a vein, in such a manner as to form a very small arch. The termination of the arteries in the veins of the placentae may easily be seen by the injection of a thin liquid, as colored water, which is readily made to pass from one order of vessels into the other. These blood-vessels of the placentae have no direct communication with those of the membrana decidua. No one has ever succeeded in injecting the one through the other, however subtle might be the nature of the injecting liquid that was employed. It is very easy to repeat this experiment upon the placenta, provided it is not torn nor injured: not an atom of the injected matter will penetrate into the vessels of the decidua which covers it, and there will be no injection extravasated, unless sufficient violence has been used to tear the parts.

This experiment proves, at the same time, that the passage of the blood of the mother to the fetus cannot be effected by means of what have been called the absorbing radicles of veins, as these would necessarily be torn in a placenta detached from the uterus, and the injected matter would be extravasated, which we have just seen is not the case; but that the transmission of the blood is effected by means of particular vessels, in the interior of which there are valves which only permit the blood to enter under certain circumstances, and under the influence of vital laws.

In carefully examining a placenta still covered by the decidua, we see that these two parts are united together by a multitude of small transparent vessels, which run from the one to the other. These vessels cannot be injected through the placental vessels, nor through those of the decidua; but a fine tube, introduced into either, enables us to fill sometimes the vessels of the placenta, and sometimes those of the decidua. Hence it follows, 1st, that there are two orders of these vessels, the one belonging to the membrana decidua, and consequently to the uterus, and the other to the placenta; 2d, that they are not blood vessels; and, 3d, that they terminate, the one order in the blood vessels of the decidua, and the other in those of the placenta, by orifices furnished with valves, which prevent their being injected in a retrograde way. The vessels of which I speak can only be lymphatic branches, of which they present all the characters: they do not, however, appear to be connected with the general lymphatic system, because they are grafted upon temporary organs, with which they are expelled when the placenta is removed from the uterus.

As to the cells which are described between the uterus and placenta, or in the uterine portion of the latter, where the arteries terminate, and where the veins arise to absorb the blood there effused, I have never been able to discover them, notwithstanding the attention with which I have made my examinations. The circumstance which may have given rise to the belief of the existence of these cells is the occasional formation of extravasations of the injected matter between the two organs; but these extravasations arise from the separation of the placenta and the membrana decidua, and the rupture of the vessels which unite it to the uterus; and they are sometimes so extensive as to leave the placenta adhering to the uterus by its edges alone. And it is also probable that blood vessels, very much dilated, as is the case in all organs the vital properties of which are preternaturally excited, have been taken for cells.

As it is now proved that there is no direct communication between the uterine and placental vessels, and as we have just stated that the cells in which the blood would be effused do not exist, the only communication we can admit be-
tween the mother and the fetus is that by lymphatic vessels, which have been described above, and some of which terminate in the vessels of the placenta, and others in those of the membrana decidua, which are themselves nothing more than prolongations of the uterine vessels. These lymphatics, which terminate in the blood-vessels of one of these organs, appear to be engrafted by their origins on those of the other; and thus those which arise from the uterine vessels, and which terminate in the vessels of the placenta, extract from the blood of the mother the materials which are fitted to enter into the composition of the blood of the fetus. The fetal blood is elaborated and accommodated to the wants of the fetus as it passes through the liver, where it appears to receive an arterial character. On the other hand, the lymphatic radicles grafted upon the vessels of the placenta terminate in the uterine vessels, and serve to remove from the blood of the fetus the materials which are no longer useful, or which might become injurious to it, and to convey them into the venous system of the mother.

Certain arguments also tend to support this opinion. The difference that exists between the movements of the blood in the mother and in the fetus, appears to prove that their sanguineous systems are connected together by a totally different order of vessels. The same conclusion must be drawn from the reciprocal independence which exists in the health of the mother and that of the fetus. Experience teaches us that an unhealthy mother may bring into the world a healthy and robust child; that the mother may be affected with syphilis, or smallpox, without the child being affected; and, on the other hand, that the child may be born with various diseases from which the mother is perfectly free. I think it must be admitted, without incurring the reproach of humoral doctrines, that in all these cases the blood which has passed from one individual to another, must have undergone essential modifications, and must have been changed by absorbent vessels, by some mechanism analogous to that by virtue of which a portion of the chymous mass, for example, is transformed into chyle by passing through the lacteals. The analogy furnished by the examination of the incubated egg, forms an additional proof that the new being does not derive its development from the successive addition of portions of blood already formed, but that the blood is elaborated by the embryo itself, or by its dependencies, and that it secretes from the surrounding nutritive substance the necessary materials for the composition of the blood.*

The last argument I shall adduce in support of this opinion is the experiment of the transfusion of blood, which shows that the blood of one individual cannot be altogether suitable for another, as is proved by the serious symptoms which have followed this operation. The losses which the body sustains cannot be repaired by the simple addition of a certain quantity of blood: it is necessary that the mass of the blood should be augmented by a fluid elaborated by lymphatic vessels; vessels which are found in the placenta before birth, and which after birth are replaced by those of the intestines, the lacteals.

We see then, en résumé, that the union of the placenta with the uterus is formed by vessels which are not blood-vessels, and which present all the characters of lymphatics; that the function in question is a positive act of absorption; that this absorption cannot take place by means of veins, because venous absorption, if it exists at all, only takes place by transudation; and that, consequently, this function must be performed by the vessels I have described, because no other than vessels of the lymphatic kind are capable of modifying the blood of the mother so as to accommodate it to the wants of the fetus; and, lastly, that the placenta appears to fulfill in the fetus the functions which are subsequently performed by the intestinal canal, rather than the functions of lungs, which have been hitherto attributed to it.—Lond. Med. & Physical Journal, May 1833, from Repert. d'Anat. et de Physiol.

* Some recent microscopical experiments have shown that the globules of blood of the mother do not resemble those of the fetus. G. B. Repert. d'Anat.
Anatomy.

2. Anatomical Observations on the alleged existence of a Ganglion Oticum in Man and Quadrupeds. By Frederick Schlemm, Professor of Anatomy in the University of Berlin, &c.—In an essay published at Heidelberg, in 1828, entitled Ueber den Ohrknoten, Dr. Frederick Arnold, professor in the University of Heidelberg, has given an account of a newly discovered ganglion connected with the third branch of the fifth pair of nerves. This ganglion, which he discovered whilst investigating the anatomy of the cephalic portion of the great sympathetic, is described, as lying on the inner side of the third branch of the fifth pair, immediately below the foramen ovale of the sphenoid bone, and from its supposed intimate connection with the organ of hearing, has been named by him Ganglion oticum s. auricolare. The first part of the essay contains a minute description of the ganglion oticum as it exists in man and several mammiferous animals; the second is devoted to a physiological inquiry into the purposes which it is intended to serve in the animal economy, and its relation to the other nervous ganglions of the head.

Although the great patience and dexterity with which Dr. Arnold has manifestly pursued his researches might perhaps be deemed a sufficient pledge of the accuracy of their results, yet it seems to me, that on a subject relating like the present to such an important organ as the ear, anatomists should not rest satisfied with the evidence of a single inquirer. The alleged discovery of Dr. Arnold seems in an especial manner to demand further investigation, as it is calculated to raise distrust in the authority of the most diligent and successful inquirers into this branch of anatomy, such as the first Meckel, Pallett, Bocci, C. Bell, &c.; and in this there would indeed be no injustice if these anatomists had really passed over, unobserved, such a distinct and striking object as the ganglion described by Dr. Arnold.

Such considerations as these, and also a complaint expressed by Dr. Arnold of a want of due attention on the part of anatomists to his discovery, have led me to investigate the subject with all possible care, and I shall now make a brief statement of the result of my inquiries.

A. In Man.—On a careful examination which I repeated on six subjects of different age and sex, I found nothing on the inner side of the third branch of the nervus trigeminus, except a reddish and vascular cellular membrane; on removing which, the origin of the nervus pterygoideus internus from the smaller portion of the nervus trigeminus, that which passes behind the ganglion gasserii, was brought into view. The internal pterygoid nerve gives off, near its origin, a branch which runs outwards, and a little backwards on the fore part of the eustachian tube, and enters the musculus tensor tympani, in which it is distributed. This is the nervus ad tensorem tymperi. Neither of the above mentioned nerves arises from a ganglion, and the nervus pterygoideus, of which the nervus ad tensorem tymperi is a branch, appears to constitute before coming off a peculiar fasciculus of the third division of the trigeminus.

In other instances, the nervus pterygoideus internus arises by two roots, a superior and inferior, of which the former gives off the nervus ad tensorem tymperi, and a nervous twig to the musculus circumflexus palati.

A. Mammalia. (a.) Ruminating Animals.—In the calf there is a reddish gray body, resembling a lymphatic gland, situate on the inner side of the third branch of the fifth pair, close under the foramen ovale, the figure of which Dr. Arnold has minutely described at page twenty-nine of the before mentioned work. From this substance (which is the ganglion oticum of Dr. Arnold,) numerous light red filamenous cords go off in different directions. One bundle, in particular, runs forwards and adheres to the nervus buccinatorius, without, however, forming a more intimate junction with it, of which it is easy to satisfy one self by pulling the parts aunder, and especially if this is done under water. Another cord goes from this body towards the circumflexus palati and a fasciculus of thread-like cords runs over the eustachian tube towards the tympanum and nervus crotophilitus. Covered at its origin by this reddish-gray body, the nervus pterygoideus internus arises from the third branch of the trigeminus, passes under the said body, but remains unconnected with it, except by cellular mem-
brane, and goes to the internal pterygoid muscle. It gives off near its origin the 
nervus ad tensorem tympani, which passes through the posterior part of the gray 
substance, or so-called ganglion oticum, without undergoing any change in ap-
ppearance, and without giving or receiving any filaments, and runs towards the 
symptoms in a groove before or above the eustachian tube, where it terminates in the 
musculus tensor tympani.

In ruminating animals, and particularly in the calf and stag, the nervus ad 
tensorem tympani is accompanied by a whitish filament, very much resembling 
a nerve in color, which really arises from the so-called ganglion oticum, and 
runs over the musculus tensor tympani, towards the back part of the tympanum, 
where it loses itself in the membranous lining of that cavity. Dr. A. has 
named this filament nervus petrosum superficialis minor, and has described a connection 
between it and the nervus glosso-pharyngeus. What this filament may be, whether a tendinous cord or otherwise, I do not presume to determine, but it 
is assuredly not a nerve.

(b.) In the sheep the reddish-gray mass, or ganglion oticum, except some 
slight alteration in shape, presents no remarkable difference. The nervus ptery-
goidicus internus does not take its rise from it, but from the third branch of the 
trigeminus, and gives off in a very distinct manner the nervus ad tensorem tym-
pani, and the nervus ad circumflexum palati.

(c.) In the stag and roe-deer the mode of origin of the nervus pterygoideus 
internus and of its branches, viz. the nervus ad tensorem tympani and nervus ad 
circumflexum palati, is the same as in the sheep.

(d.) Solidungula.—In the horse the third branch of the fifth pair, soon after it has 
passed through the foramen ovale, and while it lies close to the eustachian tube, 
is covered by a firm reddish substance from which white fibrous cords come off, 
having, on a superficial inspection, the appearance of nerves, but which, on being 
macerated in water, and then immersed in spirits, may be readily distinguished 
from them by difference of color and absence of the zig-zag appearance which 
belongs to nerves. The Nervus pterygoideus internus arises from the smaller 
portion of the trigeminus, and runs inwards and forwards, the internal maxilla-
ry artery crossing it on the inside, as that vessel proceeds towards the sphen-
maxillary fissure. The nervus ad tensorem tympani arises from the nervus pte-
rygoideus internus at the point where the latter is crossed by the artery, and 
consequently more than an inch distant from the foramen ovale. The nervus ad 
tensorem tympani, turning round the internal maxillary artery, runs outwards 
and backwards through the ligamentous mass of the eustachian tube to the tym-
panum, and terminates in the musculus tensor tympani. After giving off this 
nerve, the internal pterygoid nerve sends a filament to the common origin of the 
circumflexus and levator palati muscles.

Dr. Arnold describes the nervus ad tensorem tympani as arising from the 
reddish-gray body, or ganglion oticum, which lies on the third branch of the 
fifth pair, immediately below the foramen ovale; from which description I am 
disposed to think that he has not discovered the true nervus ad tensorem tym-
pani in the horse, since this nerve arises at a considerably greater distance 
from the foramen ovale than the filament which he has taken for it.

(e.) Multungula.—In the pig, the nervus ad tensorem tympani is a thin fil-
ament of a light reddish color, and arises evidently not from a ganglion, but from 
the nervus pterygoideus internus.

(f.) Fera.—(a.) In the dog the origin of the nervus pterygoideus internus 
lies much less concealed. This nerve gives off the nervus ad tensorem tympani 
and a small twig to the circumflexus palati.

(g.) In the cat, the nerves in question arise in the same way as in the dog. 
The nervus ad tensorem tympani is in this animal remarkably large in propor-
tion to the nervus pterygoideus from which it arises.

The following are therefore the general results of my observations, viz.
1. In man, the so-named ganglion oticum does not exist.
2. That body is present in ruminants and some other animals, but it is not 
united to the third branch of the fifth pair by nervous matter, being connected
with it merely by cellular substance; and in my opinion, the body in question is not a nervous ganglion, but a lymphatic gland.

3. Except the filament termed by Dr. Arnold Nervus pretronus superficialis minor, already alluded to by me, in the calf, which Dr. A. describes as arising from the Ganglion oticum, all the nervous branches in question, viz. the nervus pterygoideus internus, Nervus ad tensorum tympani, and Nervus ad tensorem palati, arise from the third branch of the Nervus trigeminus;—the Nervus pterygoideus coming off immediately from that branch, whilst the last two are in every case branches of the Nervus pterygoideus.

The preparations on which the above description is founded are preserved in the Anatomical Museum of the University of Berlin, and are open to the inspection of every one who is interested in this subject.—Edinb. Med. & Surg. Jour. April, 1833.

PHYSIOLOGY.

3. On the Umbilical Vesicle. By Professor Mayer.—The results from the observations of this author are, 1st, that, in the normal state, the umbilical vesicle of the human embryo remains visible from the commencement until the end of the entire development of this last. In the placentas of two full-grown twins, two vesicles are easily to be perceived. 2d. That the conduit of the umbilical vesicle becomes permeable only three or four weeks after the descent of the ovum into the uterus. 3d. That the vesicle contains no yellowish, powder-like substance; its conduit, besides being quite whole and permeable, is so narrow that it could serve but very little to the nutrition of the embryo, though the latter is of very small dimensions in the four first weeks of its development. Also it should be remarked, that the umbilical vesicle is large in the carnivora, while it is very small, and could scarcely contain any drops of liquid in the herbivora; in man it is small. 4th. Numerous observations lead us to conclude that the circulation of the blood continues for a long time in the omphalo-mesenteric vessels; whilst the permeability of the conduit of the umbilical vesicle exists only until the third month of gestation. In a monstrous fetus of the full time, the omphalo-mesenteric vessels were very distinct in all their course.—Allgem. Medicinische Zeitung.—Lond. Med. & Phys. Journ. May, 1833.

4. On the Human Voice. By Sir Charles Bell.—In reviewing the writings of physiologists we observe defects which are obviously to be ascribed to the great complexity in the organization, and the real difficulty of the subject: but there are others which arise from the habit of resting contented with assigning one use for a part in the animal frame; whereas there is nothing which should more excite our admiration than the variety of offices destined to be performed by the same organ. It is in contemplating the extent of combination established among the parts of the human body, that we become sensible of its perfection above all comparison with things artificial; and this is especially true with regard to the organs of the voice. They are remarkable for their union or co-operation in function; they all perform more than one office, and are interwoven and associated with parts which serve a double or even a treble function. But we ought not to be surprised at the intricacy of structure in the human organs of voice, when we find them capable of imitating every sound of bird or beast, excelling all instruments of music in clearness and expression, and capable of making those infinite changes on articulate sounds which form the languages of the different nations of the earth.

Although there be one subject, articulate language—on which I shall principally comment, as being that in which the treatises on the voice are altogether defective; yet, as there are lesser points in which I think authors are in fault, I shall take the subject consecutively or systematically.

It will be convenient to divide the inquiry into three heads:—the Trachea, the Larynx and the Pharynx.

Under the head of Trachea, and through the whole investigation, it is na-
cessary to keep the different functions of the part in mind; or we shall be appropriating to the voice structures which have reference to other functions. We read that the trachea is formed of imperfect hoops of cartilages, joined by membranes, and that it is flat on the back part, for these reasons: that it may be a rigid and free tube for respiring the air—that it may accommodate itself to the motions of the head and neck—and that it may yield, in the act of swallowing, to the distended oesophagus, and permit the morsel to descend. This is perfectly correct; but there is a grand omission. Whilst all admit that a copious secretion is poured into this passage, it is not shown how the mucus is thrown off.

There is a one and very regular layer of muscular fibres on the back part of the trachea, exterior to the mucous coat, and which runs from the extremities of the cartilages of one side to those of the other. This transverse muscle is beautifully distinct in the horse. When a portion of the trachea is taken out, and every thing is dissected off but this muscle, the cartilages are preserved in their natural state; but the moment that the muscular fibres are cut across, the cartilages fly open. This muscle, then, is opposed to the elasticity of the cartilages of the trachea. By its action it diminishes the calibre of the tube, and by its relaxation the canal widens without the operation of an opponent muscle.

The whole extent of the air-passages opens or expands during inspiration; and then the trachea is also more free; but in expiration, and especially in forcible expectoration and coughing, the trachea is diminished in width. The effect of this simple expedient is to free the passage of the accumulated secretion; which, without this, would be drawn in and gravitate towards the lungs. When the air is inspired, the trachea is wide, and the mucus is not urged downwards; when the air is expelled, the transverse muscle is in action, the calibre of the tube is diminished, the mucus occupies a larger proportion of the canal, the air is sent forth with a greater impetus than that with which it was inhaled, and the consequence is a gradual tendency of the sputa towards the top of the trachea. In the larynx, the same principle holds; for as the opening of the glottis enlarges in inspiration, and is straitened in expiration, the sensible glottis, by inducing coughing, gets rid of its incumbence. Without this change of the calibre of the trachea, the secretions could not reach the upper end of the passage, but would fall back upon the lungs.

Experiments have been formerly made, which, although no such view as I now present was in contemplation, prove how the action of the transverse muscle tends to expel foreign bodies. The trachea of a large dog being opened, it was attempted to thrust different substances into it during inspiration; but these were always sent out with impetus, and could not be retained. Why the dog could not be thus suffocated is apparent; the tube is furnished with this most salutary provision to secure the ready expulsion of all bodies accidentally inhaled; the air passes inwards, by the side of the foreign body; but in its passage outwards, the circumstances are changed by the diminished calibre of the canal, and the body, like a pellet filling up a tube, must be expelled by the breath.

Looking on the form and muscular structure of the trachea in man, as providing for expectoration of the secretions poured into the tube, what shall we think of the trachees of birds, which are formed by cartilages of complete circles, and which have no compressing muscles? Does it explain the peculiarity, that all the air-tubes of birds are dry; that their lungs are motionless; and that in the air respired by them there is no moisture?

These are the reasons why I must reject the opinion of Portal, that the transverse muscle of the trachea is to give force to the breath in speaking.

The trachea, and all that portion of the windpipe which extends from the larynx to the lungs, may be considered as the porte-vent, or tube which conveys the air from the bellows to the reed of the organ-pipe; and it has even less influence on the quality of sound than the porte-vent. If this portion of the air tube were to vibrate and give out sound, it would interfere with, and confuse those which proceed from the glottis. The imperfect circle formed by
the cartilages of the trachea, and their isolation from each other, are ill suited to convey sound. But I am now to notice a more particular provision against the propagation of sound downwards by this passage.

If on inspecting a musical instrument we should find a spongy body of the consistence of firm flesh in contact with a cord or tube, and an apparatus by which this body might be pressed against the vibrating part, we would not hesitate to conclude that it damped or limited the vibration. The thyroid gland is a vascular, but firm substance, which, like a cushion, lies across the upper part of the trachea. Four flat muscles, like ribbons, arise from the sternum, first rib, and clavicle, and run up to the thyroid cartilage and its hyoides, over the surface of this glandular body. These muscles are capable of bracing it to the trachea. If it be admitted that the vibration of the trachea would only produce a continued drone, rising over the inflections of the voice and adding nothing to its distinctness, we may perceive in the adjustment of the thyroid gland to the trachea the most suitable means of suffocating or stopping the vibrations from descending along the sides of the tube.

Comparative anatomy is often a test of the correctness of our inferences drawn from the human body. I reflected that if I were right in my idea of this being one of the uses of the thyroid gland, there should be no such body, so placed, in birds: and that, following up the inquiry, if we were not likely to discover the function of that gland, we might nevertheless learn why it is so singularly placed. In birds the sounding apparatus is at the lower part of the trachea; the larynx being, in a manner divided in its office. At the upper opening there is the structure, and action, and sensibility, constituting it a guard against foreign matter; but the proper organ of sound is formed on the lower extremity of the trachea and in the chest. Hence, in birds, there is this remarkable difference, that the sound must ascend along the trachea. Directed by this consideration, it is not without interest that we notice the absence of the thyroid gland in them; that the trachea itself is a firm tube with cartilages of entire circles; and that there is nothing to suffocate the rising vibrations. In no animal is the thyroid gland of the same relative magnitude as in man.

But it is easy to prove that the trachea has no influence upon the voice. Both in the open pipe or flute, and the pipe stopped at the bottom, as the syrinx, the length determines the note,—lengthening the tube depresses the note, and shortening it makes the sound more acute. A similar effect should result from the elongation and shortening of the trachea, if the changes of the voice depended upon it: but, on the contrary, the trachea is lengthened during the high note, while it is shortened as the voice descends, and the notes become graver. I have no ear to determine what harmonic sounds attend the human voice; but supposing that sounds proceed from the trachea, which is shortening, at the same time that they proceed from the upper part of the tube, which is lengthening, it is clear to demonstration that the two portions of the tube can never consent or keep any proportion in their vibrations.

For these reasons I apprehend that in the structure and condition of the trachea; the design manifestly is to suffocate the vibrations of sound, and so to impede the motions originating in the larynx from being propagated downwards.

Pursuing our inquiry into the organs of the voice independently of articulation, and looking more particularly to the larynx, we shall find that the common opinion is confirmed by experiment and every analogy, that the glottis is the primary seat of sound—the source of the vibrations communicated to the air as it is breathed. But to consider the motions of the glottis, and even the modulations of the air in the larynx, as the sole source of sound, would be incorrect. Ferrein described the edge of the glottis as being like the strings of the violin, and the air brushing over it like the bow. But even in that supposition, though the vibration of the string of the violin is necessary to the production of sound, yet that sound receives modifications through the form and condition of the instrument. As the same chord vibrating in the same time, will produce a sound the quality of which varies in different instruments, so will the sound of the chordies vocales be influenced in the pharynx. As a tuning-fork or a move-
able musical instrument, will have the quality and power of the tone changed by its position and the material with which it is in contact, so will the vibrations of the human glottis be affected by the parts above and against which the sound is directed.

The breath, which plays inaudibly in respiration, becomes vocalized when the ligaments of the glottis, or chords vocales, are braced so as to cause the edges of the glottis to vibrate in the stream of air. In a wind instrument the air must be impelled with a force to make the sides of the tube vibrate; so, in the production of sound from the human organs, there must be a certain pressure of the column of air. But in the organs of the voice there is this superiority, that there are not only the means of regulating the pressure of the column of air, but of adjusting the vocal chords, so as to suit them to the most delicate issue of the breath. The metal tongue in the organ-pipe is, by lengthening or shortening it, accommodated so as to vibrate in time with the air contained in the tube. So is the edge of the glottis regulated; but with an apparatus for adjustment the most perfect.

Besides the adjustment of the vocal chords, there is a very superior provision in the motions of the chest which supply the air, to that of any musical instrument. Although the organ has allotted to each note a separate pipe, whose relative dimensions are proportioned with mathematical precision, yet the air propelled through the pipes can never be so regulated as it is by the combination which exists betwixt the motions of the chest and the glottis. The church organ could not be made to approach the precision of adjustment in the human organs, were there as many pairs of bellows as there are pipes, and each adjusted by a weight or spring, to accommodate the pressure of air to the dimensions of the pipes.

Referring to the plates for the anatomy, I may continue my comment on the form and uses of the parts. The thyro-arytenoid ligaments, or chords vocales of Ferrein, are the lower ligaments of the glottis; they form the chink of the true glottis. These ligaments do not stand distinct from the sides of the tube, but the fine lining membrane is reflected over them. This membrane, sinking between the inferior and superior ligaments, forms there the saccus or ventricular larynx. Another reflexion passes from the extreme point of the appendix of the arytenoid cartilage to the base of the epiglottis. These inflexions of the membrane of the glottis produce a considerable intricacy in the passage of the larynx. Nevertheless, when this piece of anatomy is fully displayed, the number of muscles inserted into the arytenoid cartilages, and the effect of their motions on the lower ligaments, point to these as the chief parts, and to the others as subordinate, in producing sound.

There are, however, circumstances which lead to the belief that the saccus or lateral cavity of the larynx has much influence on sound. We perceive that one effect of this cavity is to hold off the inferior ligament from the side of the tube, and to give freedom to its vibrations. But the varieties in its size and form, exhibited by comparative anatomy, and the influence which some of the muscles of the arytenoid cartilages must have upon it, point it out as an essential part of the organ of sound; and the ear-piercing cries which belong to such animals as the Beelzebub ape, in which this cell is large, confirm the notion.

The seat of the vibrations which produce the voice is so fairly indicated by the whole anatomy, and confirmed by observation, that there is hardly an excuse for those experiments which have exhibited the motions of the chink of the glottis in living animals. It is, on the whole, better to wait our opportunity of inspecting these parts in action in man. In consequence of wounds of the throat, I have had repeated occasions to witness the motions of the glottis in man, both during simple breathing and in speaking. On every inspiration the glottis is dilated. Upon asking the patient to speak, and encouraging him when no sound proceeded, by saying that I could understand him by the motion of his lips, I have seen that in the attempt at utterance, the glottis moved as well as the lips. Although these occasions be too painful to admit of protracted experiment, I could
not omit observing that there is a motion of the glottis in correspondence with the efforts of the other organs of voice.

Of the Pharynx, and of the formation of Articulate Sounds.—We come now to a division of our subject, which, notwithstanding its higher interest, has been imperfectly treated by authors, and where the actions essential to articulate language have been altogether omitted.

Tracing the volume of simple sound in its ascent from the glottis, we see how well the epiglottis is calculated to direct it on the passages above. Immediately over the epiglottis hangs the velum palati; this curtain is formed by certain muscular fibres, which draw down the mucous membrane from the back part of the bony palate into a great fold; whilst other muscles, their opponents, furl it up. This velum forms a partition which divides the mouth from the posterior cavity, arrière-bouche, or, pharynx; and the velum, uvula, and arches of the palate vary their condition during the production of simple sounds.

When the parts are displayed, so that we may look on the outside and posterior aspect of the great bag of the pharynx, we see how well it is adapted for the office which I shall assign to it in the formation of the human voice. It presents to our view a flat expanded web, of a fleshy or muscular texture, and it extends from the base of the skull to the extremities of the horns of the os hyoides and those of the thyroid cartilage, between which it is stretched and held out. Behind, its connexions are loose; and as it forms a principal boundary of the bag of the pharynx, the great cavity of that bag is directly in front of it. If we trace the pharynx upwards from the closed extremity of the oesophagus, we perceive the glottis opening into it below; whilst above it is terminated by the posterior nostrils, and anteriorly by the mouth.

Considering the passage for the voice as one irregular cavity, extending from the glottis to the lips and nostrils, we shall find it subject to great changes, and powerful in its influence on the voice. For although the breath is vocalized by the larynx, both the musical notes in singing and the vowels in speech, are affected by the form and dimensions of this cavity. Notwithstanding the ingenuity displayed in experiments on animals, to show that their cries proceed from the larynx, we have no authority to disregard the fact, that when a person who has divided the pharynx, and exposed the top of the windpipe, attempts to speak, no sound issues from the larynx. By great effort he may produce a noise; but any thing like the common effort of speaking is attended with no audible sounds. From this we must infer that the delicate vibrations, necessary to articulate language, are influenced not merely by the action in the glottis, but by the condition of the walls of the pharynx; the cavity into which the sound is thrown.

In this part of the air-passage we shall find an exact correspondence with the flute or pipe, in so far as it is lengthened during the grave sounds, and shortened in the acute. Even if it were proved that the note is made to rise and fall by the contractions of the glottis, the great apparatus employed to move the pharynx cannot be useless. We are countenanced in concluding, that as the tube of the organ is adjusted to the reed, so is the condition of the pharynx made to correspond with these contractions of the glottis. It is impossible to see a singer running up the notes to the highest, without admitting that there must be a powerful influence produced through the alternate shortening and elongation of the pharynx and mouth. To allow the cavity to be shortened in the greatest degree, the larynx is raised, and the lips retracted; on the contrary, the trachea descends, and the lips are protruded, to lengthen the cavities, and to give out the lower or graver notes.

Of Articulation.—In pronouncing the simple continued sounds, the vowels, and the diphthongs, which are the combinations of open sounds, the pharynx, at all times irregular, varies its form or dimensions, without interrupting or cutting the sounds. These sounds are universal and expressive. What we have now to consider are more conventional, and form the constituents of articulate language.

It has been imagined that the vocalized breath ascending into the mouth is
there divided, and articulated by the tongue, teeth, and lips; and that this comprehends the whole act of speech. Such a description implies a very imperfect acquaintance with the actions which produce articulate language.

It is now my purpose to show, that in articulating, or forming the consonants, the pharynx is a very principal agent; and that this smaller cavity is substituted for the larger cavity of the chest, to the great relief of the speaker, and the incalculable saving of muscular exertion.

The late Dr. Young made a comparison of the power employed by a glass-blower, in propelling the air through his tube by the force of his cheeks, and in propelling it by the force of his lungs; and calculating the ease with which the lesser cavity is compressed in comparison with the greater,—that is, the cavity of the mouth compressed by the muscles of the cheeks, compared with the whole extent of the chest compressed by the muscles of respiration,—he concluded, that the weight of four pounds would produce an operation through the lesser cavity, equal to seventy pounds weighing on the larger cavity.

The quality of fluids, by which they transmit pressure equally in all directions, is the cause of this and of some other results which appear paradoxical. It is a property too nearly allied to mechanical power, and too important to be left out of the scheme of animal structure.

When a forcing-pump is let into a reservoir, it produces surprising effects. The piston of the hydraulic press being loaded with a weight of one pound, the same degree of pressure will be transmitted to every part of the surface of the reservoir, equal in magnitude to the base of the piston. And on the contrary, supposing the power to be employed on the reservoir for the purpose of raising the piston, it would require the weight of a pound on every portion of the superficies of the reservoir, equal in extent to the base of the piston, to raise the piston with the force of one pound.

We cannot fail to notice the effect of this law on the cavities of the animal body, in diminishing the power of muscular bags in proportion to their increased capacity.

Elastic fluids are subject to a similar influence, from the pressure extending in every direction, and the resistance always being equal to the pressure. A man standing on the hydraulic bellows, raises himself by blowing into the tube; and contrariwise, the weight of his body does not produce from that tube a blast of air superior to the force of contraction of his cheeks. A very slight pressure against the nozzle of the common bellows will resist the compression by the handles; and by blowing into the nozzle, we may raise a great weight placed on the boards. To reconcile us to the influence of this principle, as applicable to the animal economy, we shall take an example before applying it to our present subject.

A sailor leaning his breast over a yard-arm, and exerting every muscle on the rigging, gives a direction to the whole muscular system, and applies the muscles of respiration to the motions of the trunk and arms, through the influence of a small muscle that is not capable of raising a thousandth part of the weight of his body. He raises himself by the powerful combination of the muscles of the abdomen, chest, and arms; but these muscles are controlled and directed by the action of a muscle which does not weigh five grains. The explanation is this—a man preparing for exertion, draws his breath and expands his chest. But how is this dilatation to be maintained? If the muscles which expand the chest are to continue in exertion to preserve it so, there must be a great expenditure of vital force; besides, these muscles are now wanted for another office. The small muscle that closes the chink of the glottis suffices. It contracts on the extremity of the windpipe; and here, acting so as to confine the column of air, it is superior to the united power of all the muscles of the chest and trunk of the body which act upon the cavity of the thorax. However powerful the muscles of expiration may be in compressing the chest, their influence is very small on the column of air in the windpipe, the pressure there being no more than on any part of the walls of the chest, which is of the same diameter as the base of the tube. The closing of the glottis by this small muscle, throws all those of the
Physiology.

chest and abdomen, which are otherwise muscles of respiration, free to act as muscles of the trunk and arms.

But if any defect of the windpipe, or of the muscle which closes it, permit the air to escape, the muscles of the chest and abdomen sink with the falling of the chest; they become muscles of expiration, and lose their power as muscles of volition; consequently all powerful efforts cease in the instant. When an unhappy suicide thinks to perpetrate self-destruction by dividing his windpipe, his sensations of sudden and total failure of strength announce the accomplishment of the act; but he is deceived. In the moment of lunatic excitement, his energies are wound up, and his breath is drawn and confined; but now the trachea being divided, in the instant he is seized with feebleness; for the compressed air is let loose, the chest subsides, and the whole muscles of the trunk and arms are lost to the actions of volition. He feels as if struck with the sudden influence of death; his actual death depends on other circumstances.

Thus we perceive that the muscle of the glottis, not weighing a thousandth part of the muscles of the trunk of the body, controls them all; changing them from muscles of respiration to muscles of volition; and this it is enabled to do on the principle of the hydraulic press.

We are by these instances prepared to understand the great importance in the animal economy, of power being employed on the lesser cavity in preference to the larger; and how much will be saved if the appulse necessary in articulation be given by the pharynx instead of by the greater cavity of the thorax.

In a person whom I had the pain of attending for a long time after the bones of the upper part of the face were lost, and in whom I could look down behind the palate, I saw the operation of the velum palati. During speech, it was in continual motion; and when this person pronounced the explosive letters, the velum rose convex, so as to interrupt the ascent of the breath in that direction; and as the lips parted, or the tongue separated from the teeth or palate, the velum recoiled forcibly.

These facts lead us to the further contemplation of the pharynx. We see it to be a large cavity behind the palate, formed by a dilatable bag, and acted on by many muscles. We have seen that the volume of sound issues into it from the glottis below; and that although it opens into the nose above, yet this passage is closed, whenever the velum is raised, like a valve, in the manner just described; at such a time, if the mouth be also shut, the bag will be closed on all sides, and may then suffer distension by the vocalized breath ascending through the glottis.

In speaking, much of the sound, as of the vowels and diphongs, is the uninterrupted issue of the vocalized breath, modulated by the passages, and differently directed, but not checked or interrupted. The consonants are the same sounds checked by the tongue, lips, or teeth. At the moment of this interruption, the pharynx, being distended, is prepared to give an appulse, by its muscular action, exactly in time with the parting lips.

If we grasp the throat whilst speaking, so that the fingers embrace the bag of the pharynx, we shall feel that each articulate sound is attended with an action of the pharynx; and preceding each explosive letter, we shall be sensible of a distension of the throat. By a close attention to the act of breathing, we shall perceive that whilst the distended chest falls gradually and uniformly, the bag of the pharynx is alternately distended and compressed in correspondence with the articulated sounds.

We can now conceive that if each appulse of the breath in speaking arose from the action of the chest, it would be attended with great and unnecessary exertion; since in proportion to the size of the reservoir, and the smallness of

* The principle is as important in its application to pathology, as to the natural functions. It explains the weak pulse which attends the dilated heart; how the contractions of the uterus become more powerful in the progress of labor; and why the distended bladder acts with diminished power in the expulsion of the urine through the urethra. On the same grounds we understand how a slight spasm in the canal of the urethra will resist the most powerful contractions of an enlarged and thickened bladder, aided by the pressure of the abdominal muscles.
Quarterly Summary of Intelligence.

the tube that gives issue, would be the force required on the sides of the reservoir to produce an impulse along the tube. If each consonant and accented syllable required the action of the whole thorax, we should find that a man, instead of being able to deliver an oration of some hours in length, would be exhausted in a few sentences; like a person who bellows and gives pain by the violence and consequent ungracefulness of his action.

Proofs of the correctness of the Opinions advanced, drawn from the effects of accident and of disease occurring under the Author's observation.

1. A child having drawn the broken shell of an almond into its windpipe, was in momentary danger of suffocation, and could utter no sound until the shell was extracted by incision.ª

2. Owing to disease of the glottis, it was necessary to open the membrane between the thyroid and cricoid cartilages; the voice instantly ceased; and no sound could be produced, while the air passed freely from the wound: "the harsh sawing sound of the air in the contracted glottis, immediately ceased, and the air played easily with a stifling sound through the wound."

3. A small pebble having fallen into the glottis of a child, there was a stridulous sound in drawing the breath, but no voice in the expulsion of the breath.

4. When an ulcer had destroyed the margins of the glottis and the sacculi, the patient spoke in a husky whisper, "reedy and very feebly."

5. Thickening of the membrane of the glottis and epiglottis had a similar effect, the person speaking painfully in a whisper.

6. A man died of suffocation from a pustule, which formed on the margin of the false glottis; whilst he breathed, the sound was like the noise of a saw, harsh and loud.

7. The epiglottis being destroyed, and a deep ulcer in the sacculus, "the man attempted to call, but with a husky sound."

8. When the interior of the larynx was coated with coagulable lymph, except the clavicles, during coughing, the voice was quite gone.

9. When the suicide has divided the larynx from the tongue, and opened the pharynx, no sound issues from the larynx in his attempt to speak; and it requires a powerful effort to produce any sound at all. When the glottis is thus exposed, it is seen to move in the effort to speak.

10. The loss of the velum pendulum palati was attended with the defect of articulation; the sounds were run together and nasal.

11. When polypus fills the cavities of the face, the voice is deficient in sonorousness and clearness.

12. When a communication is formed between the mouth and nose, the sound is nasal, and the articulation imperfect.

13. The entire removal of the bones of the face deprived the voice of all force, and gave it a sound which we should have called nasal, had any part belonging to the nose remained.

14. The defect of nervous influence in depriving the muscles of the velum and pharynx of due tension (as in apoplexy) produces stertor or snoring. That this depends in a great measure on the relaxation of the velum, appears from this,—that changing the position of the head, so that the velum shall not hang against the back part of the pharynx, removes the distressing sound.

15. In extreme weakness, as from wounds and loss of blood even to insensibility, groaning proceeds from the condition of the glottis; as if the call for sympathy and assistance were intended to be the last effort of life.

By these facts it appears; 1st, that the trachea gives out no sound of itself; 2d, that when the passage of the trachea is much encroached upon, the column of air is not sufficient to move the cords of the glottis; 3d, that whatever inter-

ª The probe was passed several times into the windpipe, and passed the broken shell without discovering it. It had been caught by the action of the transverse muscle, and the sharp broken edge forced into the mucous membrane; which was the reason that it was not coughed out of the wound.
Pathology.

5. Cancer of the heart and kidneys, by M. Renauldin.—A laundress, aged 65, who had been sick about two years, entered l'Hopital Beaujon, on the 15th of March. She was feeble and much emaciated; her countenance exhibited a yellowish suffusion; she had slight diarrhoea, and suffered from loss of appetite and inability to sleep. The left side of the abdomen presented a hard angular tumor, which was painful to the touch, and which from its situation had been attributed to an enlargement of the spleen. The application of leeches to the tumor, mucilaginous drinks, and strict diet produced considerable mitigation for three weeks—the tumor nevertheless increased in size, and became so painful as to render it necessary to resort to the internal and external use of opium: the diarrhoea also continued, and she sunk exhausted on the 30th of July, 1838.

Necropsy.—In the left ventricle of the heart there was a carcinomatous tumor as large as a nut, surmounted at its summit by a number of varicose excrescences analogous to those which arise from syphilis. The abdominal tumor was not seated in the spleen, but in the left kidney, which was enlarged to the size of the fist, and had its whole substance occupied with a cancerous degeneration. The spleen, encroached upon by this tumor, was reduced to the volume of a small nut. There were also two small carcinomatous tumors in the right kidney, and in the uterus. This case is somewhat singular from the circumstance that there was neither disturbance of the circulation or of the urinary secretion during the life of the patient.—Archives Generales, August, 1838.

6. Communication between the right and left auricles and the right and left ventricles of the heart in an adult, who had been affected with cyanosis from the period of birth.—M. Ragnier presented to the Anatomical Society the heart of an individual, aged twenty-two, in which the auricles communicated with each other through a thin reticulated, translucent, cribiform membrane, of the breadth of a two franc piece, which was circumscribed by the valve of the foramen ovale. There was also an opening through the septum of the ventricles large enough to admit a writing quill. The right ventricle was affected with concentric hypertrophy, and the internal surface of the pulmonary artery presented several small thickened, cartilaginous points of the character of those which precede the ossification of the vessels. A case had been presented a short time before, in which the auricles communicated through a similar reticulated membrane.—Revue Medicale, August, 1838.

7. Case of Cyanosis, by Robert Spackman.—The subject of this disease was John Thomas, of Walcote, Leicestershire, aged nearly 4 years. I had been in the habit of seeing this child occasionally from his birth: he appeared as healthy as usual till towards the end of the first year, when his lips, fingers, and toes, were observed to acquire a blue color; his appetite was generally good; and, with the exception of those blue parts of the surface, he remained tolerably well for 6 or 8 months longer. About this time his breathing began to be
affected, with occasional paroxysms of dyspnoea and the blueness, which was increased during these paroxysms, became more diffused over the body. He was never competent to any exertion common to children of his own age, and if he walked a few yards, he was obliged to rest himself on his hands and knees—a position which he usually had recourse to for relief, and in which he had for a long time been accustomed to sleep; and if occasionally he got upon his side while sleeping, he quickly awoke, and returned to this attitude. In the spring of the present year he had the hooping-cough, which of course materially aggravated all his symptoms, but on the whole it passed off favorably. He continued in this state, with little variation, till five weeks ago, when the blueness acquired a more fixed and leaden hue: at this time he became subject to more violent attacks of dyspnoea, attended at intervals with slight convulsive movements and syncope: these paroxysms recurred frequently during both day and night, and as consciousness returned, he went for relief to his usual position upon his hands and knees, or to lie upon his face across his mother's lap: he likewise was in the habit at such times of drinking cold water, which he did freely, and it appeared to afford him some relief. I gave him likewise the following mixture, which seemed also for a time to relieve the most distressing symptoms:


On Monday morning, Aug. 12, after a fit of the above description, he suddenly expired.

Dissection, 26 hours after death.—The corpse was somewhat taller than usual for a child of four years, and very thin, but presented externally nothing more than common, except the leaden-coloured fingers, &c. There was very little fat, and the muscles were small, but of the usual color. On opening the thorax, we found the lungs collapsed and of a dark color; the vessels of the pleura were strongly injected with dark-colored blood; the pericardium contained about an ounce of fluid; the heart was of a dark color, with its apex considerably rounded, and the right auricle enlarged and distended. In cutting through the vessels, to remove the heart and lungs, nearly a quart of fluid purple blood escaped from the venous system, which was everywhere very much gorged. An opening was now made into the right auricle, and here the fossa ovalis presented no opening to our view; but on the probe being passed behind a valvular fold of membrane, which partly covered the fossa, it readily found its way into the left auricle. The left auricle was now opened, and appeared of its natural size, and the remains of the foramen ovale presented a fold of membrane similar to the one in the right auricle, so as completely to shut up the communication between the auricles: this opening was large enough to admit a very small quill. The aorta was considerably larger than its full size; the ductus arteriosus was completely obliterated; the pulmonary artery was contracted to the size of a turkey's quill: on slititg it up, the semilunar valves were found healthy; the contraction of the orifice was situated immediately beneath them. Here also were observed some granulations, which appeared to us to be assisting in obliterating the pulmonary artery: the pareties of the right ventricle were as much as three quarters of an inch in thickness, and firm; the muscular fibres were more condensed than those of the left, and its cavity much diminished; the columnae carneae pale; the lining membrane and tricuspid valves natural; the walls and cavity of the left ventricle were also natural. The finger passed freely from this cavity into the aorta, and on passing the finger of the other hand into the right ventricle, an opening was found in the septum ventriculorum, at the base of the heart, the size of a sixpence, where it came in contact with the finger already passed into the aorta from the left ventricle, and on opening the ventricle rather more freely, the communication was seen between the ventricles at the origin of the aorta. There was no appearance of disease in the aorta, its lining membrane, or valves: the pulmonary veins were rather smaller than natural. On opening the abdominal cavity, the liver was seen of a large size, extending from the right into the left hypochondriac region, and of a dark purple
color; the gall-bladder contained a moderate quantity of well-colored bile; the stomach was very much contracted and pale; the spleen was much larger than natural, and of a dark blue color; the kidneys also were congested with venous blood, the emulent veins being distended. The mesenteric glands were enlarged, as likewise were the glands of Peyeri. I much regret that we were not permitted to remove this very interesting mal-formation.—London Medical Gazette, Sept. 1833.

9. Injury of the first pair of nerves, attended with loss of smell. By M. Voisin.—Among several cases of gunshot wounds admitted into the Hôpital de Saint Louis, reports of which have been made by M. Voisin (interne de l'hôpital,) the following is physiologically interesting:

In this case, the ball had passed through both orbits in the plane of the root of the nose, destroying the two eyeballs and the olfactory nerves. The sense of smell is entirely lost. Vinegar, strong ammonia, and so forth, have been employed without any effect to produce their ordinary results. This case is reported for the benefit of those modern physiologists who would dispossess the olfactory nerves (the first pair) of their ancient privileges, for the special aggravamento of the trigemini.—Lond. Med. & Physic. Jour. Jan. 1833; from Gazette Medicale.

9. Pericarditis occasioned by the introduction of a long needle into the substance of the right ventricle of the heart. By M. M. RENAULDIN & BOUCHET. A man aged 68, came from the country to Paris, to arrange, as he represented, some affairs of importance. It was immediately discovered that he was affected with suicidal monomania. He wrote a note stating that he should die in the course of five or six days. For seven days, during which he was confined to his bed, he took no nourishment except a little colored water. One night he twisted a cord about his neck, and represented the next day that some savages had attempted to strangle him. He was received at l'Hôpital Beaujon on the 8th of July. His responses were slow and embarrassed, but he did not detail any of the above circumstances, which were not ascertained until after his death. He merely complained of some asthmatic symptoms. There was in effect some oppression, and percussion elicited a dull sound on the anterior and on the right and left sides of the thorax in the region of the heart. The respiratory murmur was extinct in the same situations. His inspirations were seventeen in a minute, and his pulse, which was hard, tense and expanded, was 127. He lay at first on the right, but afterwards on the left side. Under the influence of diet and sudorific drinks, the oppression was much mitigated, and he was able to take some aliment. On the 18th day, however, the oppression was exacerbated; the patient raised himself to the sitting posture; pronounced some broken sentences, fell again upon his bed, and expired.

Necropsy twenty-four hours after death.—The pericardium was distended with nearly three pounds of water; its substance was thickened by inflammation, and its internal surface, which presented a granular aspect, was covered with patches of albuminous concretion. The heart adhered to it by the apex, and within the substance of the right ventricle near its lower part, there was a needle three inches in length, which was plunged through the organ, passing within the cavity of the ventricle, in a direction from before backwards, and from above downwards and towards the right side. It is probable that the needle had been introduced through one of the intercostal spaces, yet no cinctrix could be discovered. The presumption is that it had been plunged in the organ about the time at which the individual attempted to strangle himself. Consequently, it must have existed there about three weeks. Its presence had excited the pericarditis by the irritation inflicted on the membrane by its two extremities. It is somewhat remarkable that he never complained of pain in the region; and the circumstances render it probable that if the needle had been extracted shortly after its introduction, life might have been preserved.

Ibid.
10. **Singular Cases of Hereditary Deformity;** communicated by M. Voisin.

**Case I.** Madame Dartigas has had twelve children, nine boys and three girls, and two miscarriages. One of the boys (Louis) has a supernumerary toe on the left foot, situated between the fourth and fifth metatarsal bones; it has two phalanges, and appears to adhere by ligaments only. Another brother (Pierre) has six toes on each foot. The eldest brother (Jean Baptiste) is married, and has had six children; the last has a supernumerary finger at the extremity of the first metacarpal bone of the left hand. One of the sisters (Marie) had an additional finger on the left hand, but, as it was attached by a very slight pedicle, it was removed when she was an infant. Lastly, a sister of Madame Dartigas married, and had eight children; and one of her sons has also a supernumerary finger on the left hand.

**Case II.** In a family residing at Limoges, a remarkable peculiarity has continued for five or six generations. The eldest male child alone has, upon his forehead, a lock of white hair. In the female children no such appearance has ever existed. This inexplicable hereditary phenomenon occurs in every male branch of the family.

**Case III.** This case and the last were communicated to M. Voisin by his colleague, M. Chauchiing. A lady of his acquaintance had a severe whitlow which produced a deformity of her index finger; and a similar deformity was transmitted to her two children. She had had other children before, but in neither of them did any such peculiarity exist.

However inexplicable the above curious facts may be, we are not at all inclined to doubt their authenticity. Two similar cases of hereditary deformity have fallen under our own observation, which we may briefly relate.

**Case I.** A lady and her two daughters are now residing in Upper Berkeley street, Portman square. The youngest daughter has a band of perfectly white hair in front, which looks like a broad white ribbon when laid flat round the head; the rest of her hair is black. This peculiarity has existed in one female of several branches of the family for six or seven generations.

**Case II.** About sixteen years ago, Mr. North attended a young female during her confinement, who had been the chère amie of a banker well known in London. This gentleman has a supernumerary finger on the left hand, and a supernumerary toe on the right foot. Very fortunately for the lady and the infant, the latter bore upon its left hand and foot very striking proofs of its paternal origin, for it had the additional finger and toe. The gentleman no longer doubted the constancy of his mistress, of which he had before been somewhat suspicious, and the child was well educated, and is now in a respectable business.*

We learn, from the Medical Gazette, that there is now in St. George’s Hospital, a patient in whom the patellæ are entirely wanting. The knee looks rather flatter than usual, but no apparent evil results from this anomalous formation, as the man says he can walk many miles a day without difficulty. The peculiarity is hereditary, neither his grandfather nor father having had patellæ; and it also extends to other members of his family.—*Lond. Med. & Physical Journal, May, 1825.—Gazette Medicale, No. 119.*

11. **Thirty-one Fractures in one and the same individual.**—There was lately in Bird’s Ward an extraordinary instance of the facility with which the bones of the body are occasionally broken and re-united, in the person of Eliza M., fourteen years of age, who was admitted April 29th, under the care of Mr. Arnott, for fracture of the right thigh, in consequence of a fall. This, according to the account of the mother, is the thirty-first fracture which her daughter has experienced; and the girl, who is quick and intelligent, states the particulars thus:—The right thigh has been broken seven times, the left six; the right leg nine times, the left once; the right arm four times, the left three; and the left forearm once.

*In the estimation of the public, no doubt whatever would be entertained as to who was the father of the child. Even with such evidence, however, physiologists might still be sceptical. Vide *Mayer’s Physiology, 2d edition, p. 429.*—Editors.
Pathology.

Eliza M. was about three years of age when the first fracture, that of the left leg, occurred from a fall, and she has never fallen since without fracturing a limb. But even this is not necessary; for she has broken a bone by merely catching hold of a chair, and sometimes in simply turning round suddenly. She has a sister six years of age in whom there exists the same susceptibility, and who, since the age of eight months, has had nine fractures. In neither of their parents or their families has there been any similar disposition, nor in three others of their children, two boys and another girl.

There is nothing peculiar in E. M.'s appearance. She has delicate features, a fine skin, dark hair and eye lashes, and bluish grey irides. The bones of the trunk and upper extremities present no alteration from the natural form, but those of the right leg are strongly arched forward, and so is that of the left thigh; in a trifling degree this is the case with the left leg and right thigh. Besides the curve forwards, the bones of the right leg seemed to be flattened laterally, as in rickets, but no curvature existed before the bones began to break. A variety of medicines were formerly tried in this case, with a view to remedy the great brittleness (as it has been called) of the bones; but the mother states that she never found them to be of the least benefit. She speaks, however, in strong terms of the advantages derived from a residence at the sea side, and nourishing diet.

No difficulty has ever been experienced in getting the bone to unite—so little that the mother has treated many of the fractures, (those not attended with displacement,) herself, and has of late sought surgical assistance only when the larger bones were broken. Thus the girl was in the hospital about two years ago for a broken thigh, and this interval is the longest she has ever experienced without a fracture.

The thigh bones, and those of the arm, have never been broken without displacement; those of the leg have. It would seem as if, in the case of the latter, the fracture had not always been complete. Her health suffering, this girl left the hospital on the 23d of May, but Mr. A. mentioned the other day that he had since called at the residence of her parents, and found her doing well. The limb had been treated on the double inclined plane with splints which were continued at home. E. M. does not walk without a crutch, and it was in consequence of this slipping that she met with her last accident; but Mr. A. found her sister, who has had the nine fractures, running about without any assistance of the kind, and in a state of apparently perfect health.


12. Extraordinary dilatation of the oesophagus.—By Alexander H. Hannay, M.D.—J. L. & T. 58, rather short of stature, was however, well-proportioned, muscular, and of active habits. On taking food he experienced a sensation as if it were arrested in the oesophagus, a little way above the lower end of the sternum, giving rise to the most painful and protracted efforts to swallow. Early in the history of his case, there was merely a sense of uneasiness in the epigastric region created by taking food. This gradually became more distressing, and at a late period, occasionally amounted to an agonizing sense of distension. This suffering was worst after a full meal, and generally subsided slowly; hours used to elapse before it was completely gone. The nature of the food or ingesta did not modify the complaint in any observable degree—yet a large quantity always increased the evils of his condition. Immediate relief could be obtained by vomiting, which he was often induced to excite to remove his distress. After intemperate indulgence in spirits, to which he was much addicted for a considerable time previous to his death, the pain on taking food was aggravated, and the vomiting came on spontaneously. Under these circumstances, fluids alone, for example tea in the morning, gave rise to the agonizing feelings above described; though when temperate, he only felt slight uneasiness from taking ingesta of this nature. No obstruction was experienced on passing a probang. The sounds of the chest on percussion and auscultation were natural.

The difficulty of swallowing had existed since boyhood; at which time he received a violent blow on the chest inflicted by a club or shinty. It has left no
Quarterly Summary of Intelligence.

external marks. Since that accident, he has had more or less uneasiness in the epigastric region, and impeded ingestion; but his memory failed him in describing the circumstances which attended the injury, and his account of the case at that time was most meagre and unsatisfactory. It has gradually become more urgent with advancing life, and has always been modified and aggravated by the circumstances before mentioned. His general health did not appear to suffer much from the dysphagia, and any changes which his constitution and aspect experienced were rather attributed to his intemperance than to the difficult deglutition. He had of late complained of a constant sense of oppression in the chest, made worse by running up stairs or by violent exertion.

One morning about half-past three o'clock he walked home from a supper party, after eating most heartily and drinking as usual to excess. He did not go to bed, but, as was his custom when tipsy, sat down on a chair and fell asleep, with his head in a position calculated to prevent the free return of the blood from the head. His friends have frequently seen him sleeping in this position till his face became livid.

He had fallen forwards on his face and on his knees, as if kneeling, and the wall against which his side fell supported him till found in this attitude.

No one can give any account of his last symptoms, for he was found quite dead between five and six o'clock—say two hours, or two hours and a half, after he had walked up stairs by himself.

Dissection thirty-two hours after death.—Very little change effected on the countenance by death—nor was there any unusual swelling or lividity.

Head.—The scalp was very thick and remarkably adherent. The membranous envelopes of the brain had their vessels distended with blood, but were otherwise free from disease. The sinuses were full of dark grumous blood. Numerous bloody points were seen on the surface of sections of the brain. The plexus choroides was tumid, of a very deep purple or port-wine color, whilst the lining membrane of the ventricles was quite natural in its appearance. This dark purple condition of the plexus choroides is not uncommon in persons who have died of apoplexy. It was the only appearance of disease. In a case of apoplexy recorded by Dr. Abercrombie, in his work on the Diseases of the Brain and Spinal Cord, (p. 219, 2d ed.) and in the case before us, it was the most remarkable, for there was no effusion either of blood or serum within the head.

The Chest sounded naturally on percussion. The lungs were somewhat, though not very remarkably, gorged with blood or other fluid (bloody serum.) There were a very few firm tuberulous masses scattered through these organs, but in other respects they and the serous membrane of the chest were particularly healthy.

On turning the right lung to the left side of the chest, in order to cut it out, I uncovered and displayed a long sac, running on, and parallel to the spine, covering that column and projecting over it into the right side of the chest. It was distended by fluid—the distension was increased by pressing the stomach, and pressure on the sac forced back the fluid into the last named viscus. Until I observed this, I imagined that the appearances arose from an aneurism having burst into the posterior mediastinum.—a circumstance that well agreed with the sudden death of the individual. But the above communication, and a little more investigation immediately showed that the sac in the mediastinum was the oesophagus enormously dilated and distended with ingesta.

The dilatation began immediately on its entrance into the chest. The cervical portion was perfectly natural.—It gradually grew wider till it reached the middle of its course in the thorax. There the sac measured, as it laid collapsed on the table and unopened, rather more than three inches across, or when fully distended with fluid, more than six inches in circumference. The thoracic portion alone required above eight gills of water to fill it; and when so filled it looked like the arm of a person fifteen or sixteen years of age.—From the middle of the thoracic portion it gradually diminished in capacity till it reached its appropriate aperture in the diaphragm, where it was of its natural dimension.

I found in the oesophagus a very considerable quantity, about a pint (English)
of a light-colored fluid, something like white or pea-soup, (but approaching to a buff color), consisting, besides the liquids, of particles of fowl, ham, and bread which appeared to have been in the stomach, and to have undergone a partial digestion.

The parietes of the tube were several times their ordinary thickness—and comparatively speaking, dense and strong; they had lost almost all trace of muscular texture; the appearance of a section of them reminded me of a piece of sole or thick leather. They had a good deal of blood in them, and seemed very vascular. Its internal or mucous coat was very vascular, arborecent, and red; it was as it were spotted with abrasions of its cuticle, and felt rough and scabrous to the finger. Some parts were smooth, and being less red appeared almost natural. There was no obstruction either by tumor external to, or by constriction within the canal. The aperture by which it penetrated the diaphragm was quite patent, of the natural size, and presented no obstacle, nor could any be detected on minutest examination.—Edinburgh Med. & Surg. Jour. July, 1833.

There were no remarkable appearances in any other organs, though carefully examined.

13. Apoplectic Death from effusion of Blood from Aneurism of the Basilir Artery. By Mr. Egerton A. Jennings. (Transactions of the Provincial Medical and Surgical Association, vol. i. 1833, p. 270.)—It may be remembered, that Mr. Hodgson, in his work on Aneurism, pointed out the fact that extravasation of the blood within the cavity of the cranium generally arises, as elsewhere, from a previous morbid condition of the arteries of the brain; and that M. Bouillaud, in a paper published in the 9th vol. of the Mem. Med. Society of Emulation, in 1829, undertook to show that apoplexy depends on disease of the arteries of the brain, which become steatomatosous, opaque, brittle, inelastic, and incapable of containing their contents, or favoring their transmission, and thereby give way at the weakest points.

We, on a former occasion, canvassed the merits of this doctrine, and considered the facts on which it rests. It is so far well founded, that it may be justly said that copious extravasation of blood within the cranium never takes place spontaneously—that is, without external violence, unless after previous disease of one or more of the cerebral arteries. The following is a very beautiful instance of this species of lesion.

John Beard, aged 54, a stout healthy man, had served seventeen years in the army, which he had left about twelve months. He had enjoyed good health until within the last few months, during which time he had suffered frequently from headaches, which were sometimes very violent, but never so severe as to prevent him from performing the ordinary duties of a laborer. When actively employed he suffered least; but on Sundays, and at other times when unoccupied, his spirits were extremely depressed, and he complained more of the pain in the head. He frequently experienced great weariness of the limbs, which occasionally went to sleep.

On the 15th December 1831, after passing a more comfortable day than for some time previous, he took his supper early and retired to rest, expressing great pleasure at finding himself better than usual. In about an hour after he went to bed, his wife was alarmed by hearing him make a peculiar noise in breathing: On going to him, he informed her that he awoke suddenly, supposing that he had been violently struck at the back of the neck. He could scarcely breath, and was confident that he was going to die. He almost immediately became insensible. Mr. Jennings saw him about twelve o'clock, and was struck with the peculiar character of the respiration, which consisted of alternate violent spasmodic inspirations and slight groans but without stertor. Inspiration had the character of a violent sob; expiration was attended with a long-continued groan. All the limbs were completely powerless, and void of motion; when lifted from the bed they fell as though dead, and appeared quite insensible when pinched or pricked. Common sensation and motion appeared, however, to exist in the face; for, on tickling the cheek with a feather, the muscles contracted, and on intro-
ducings fluids into the mouth, the lips and cheeks moved, but he could not swallow. The pupils were not unnaturally dilated, and contracted on the application of light. When spoken to very loudly, and requested to put out his tongue, he made an effort to do so, but did not get it beyond his lips. He gave no other indication of consciousness. He was in a profuse perspiration. As he lay, the head was evidently drawn backwards, arching the neck considerably, and when the neck was straightened, it directly returned into the same position when left to itself. The pulse was 80, small, and rather hard.

Mr. Jennings immediately took fifty ounces of blood from the arm, which had the evident effect of relieving him considerably. He opened his eyes, spoke, said the back of his head and neck were in pain, breathed more calmly, put out his tongue, and moved his limbs. The pulse rose to 90, and was soft. In half an hour after the bleeding, he endeavored to get out of bed; but an effort to vomit coming on, he fell backwards insensible, and again entirely lost the power of moving his limbs. The breathing returned to its former state, and gradually became more difficult, with occasional long intervals between each respiration. He soon became quite unconscious of any sound, however loud; and respiration became slower and more laborious, until about seven o'clock, when he died.

Inspection of the body seven hours after death was performed.—The brain and spinal chord were removed together from the body, by first sawing away the arches of the vertebrae, and then opening the cranium. A large quantity of serous fluid was effused at the basis of the cranium, and into the spinal canal, in its whole length. A large coagulum of blood was found covering the medulla oblongata, and just extending to the tuber annulare, but not at all covering it. On carefully opening this clot, a small aneurism of the basilar artery was discovered. This aneurism, which was about the size of a pea, had given way, and been the source from which the hemorrhage had taken place. The clot involved at their origins the sixth, seventh, eighth, and ninth, pair of nerves, and, of course, must have produced great pressure upon them, and also upon the medulla oblongata. A slight thin coagulum extended round the spinal chord; in some parts, it presented more intense red patches. There were also, in one or two places, small clots on the surface of the cerebellum.

In the dissection of the brain, the whole of its substance was found remarkably injected. In many places, the medullary matter presented exactly the appearance of a white surface sprinkled over with red sand; or, as M. Lallemand has named it, the injection sablee. No other morbid appearance was discovered.

This case, which shows the effects of the effusion of blood on the bulb of the spinal chord, proves also that the rapidity with which apoplectic symptoms prove fatal, depends very much on the part of the brain in which the vessels are injected, or the blood or serum is effused. It also well explains the kind and degree of the symptoms.—Edinburgh Med. and Surg. Jour. July, 1833.

14. New variety of Hernia.—M. Laugier has reported a case in which a hernial protrusion took place through Gimbernat's ligament. It occurred in a female, aged 45, and was taken at first for an inguinal, and by the operator himself for a crural hernia. Its true character was not discovered until after death, which took place, in consequence of peritonitis, five days after the operation.—Recueil Medicale, April, 1838.

15. Congenital vice of conformation of the Brain. By M. Deschamps.—A man named Merme, aged 43, died from the effects of a fracture and dislocation of the femur. When he presented himself at the hospital he was laboring under aberration of intellect which had been of long standing. His physiognomy was moreover idiotic; but he did not appear to be entirely so, insomuch as he was heard reproaching a patient who lay in a bed near him as the source of all his sufferings. His members were disqualified for their ordinary offices by several deformities and contractions. The brain presented: 1, a preternatural prolongation of the sciera sylii, which extended to the upper surface of the left hemisphere. 2. Two accidental openings, which were distinct,
and over which the convolutions of the brain were folded—these openings established a communication between the periphery of the brain and its central parts. 3. On the superior face of the hemispheres a trifid lobular division. *Archives Generales, September, 1833.*

16. *Death by the guillotine.* By Julia-Fontanelle.—The author concludes, from a review of all the experiments which have been made on the subject, contrary to the common opinion of physiologists, that death by the guillotine is one of the most horrid and atrocious that could be invented;—that the pains of decollation are frightful, and even endure until there is an entire extinction of animal heat.—*Archives Generales, September, 1833.*


**Case I.** On Tuesday, the 18th of August, 1832, I visited — Horsey, aged about thirty-four. On entering the room, I remarked extreme excitement of the whole system, so much so that all the muscles appeared to be slightly convulsed; he was not entirely incoherent, but labored evidently under delusions, the purport of which seemed to be, that there were disturbances which either annoyed him or in which he considered it necessary to implicate himself. On examining the head, I was struck with the greater heat about the region of circumspection, namely, near the point of ossification of the parietal bones, which extended in a circle about four inches in diameter. This appeared very obvious to the two medical gentlemen who, besides myself, were present. We endeavored to quiet him by kind conversation, and we agreed that the hair should be shaved off the heated region; six leeches applied on either side, (he being previously undressed, and reclining on the bed, with the view to his getting sleep;) and we ordered that afterwards the room should be kept dark and free from noise. Aërotic purgatives were prescribed, with a view to act on the lower bowels; and light diet, with a glass of port wine, allowed, he having been addicted to drinking.

*Previous history.* Was porter to the Royal College of Surgeons in London, and had been discharged for impertinence to one of the officers, who exercised, as Horsey thought, too great military authority. After his discharge, (or, according to his own statement, after he had sent in his resignation, on the plea of ill health, on which account his wages were continued for a month, during his stay in the country,) he went to his friends; but, not meeting with employment that suited him, he returned to town. For many days before his attack, he had been drinking large quantities of brandy and other spirits. He complained of his inability to sleep.

After a second application of the leeches, at an interval of two days, he gradually became more rational, and by raising his hopes of being reinstated in his former situation, he was eventually restored to health.

In tracing the immediate cause of excitement, a due weight should be attached to the effect of the spirits he took; but they merely excited into more violent action those feelings of caution, previously over active; and this case combines the partial disease and the inflammation of a particular portion of the brain.

**Case II.** October, 1832. J. B., about two months ago, during a violent thunder-storm, was standing at the garden door; when a flash of lightning so terrified him that he never appeared to recover from the fright. His father observed that the expression of his countenance changed, and never recovered its natural appearance, from that time to his death. His mother said that, from the period referred to, he became fractious, exceedingly timid, and had lost all the quickness he had previously manifested.

He was treated by his medical attendants for inflammation of the brain; but it appears that the symptoms were never effectually subdued. About five weeks before his death, (i.e. three weeks after the fright,) he was seized with a convulsive fit, which lasted five hours, and which was followed by hemiplegia; and although the paralysis was relieved, he never completely recovered the use of the affected side.
On Friday last he became completely senseless, and died yesterday (i. e. Sunday) at twelve o'clock.

Autopsy. On stripping off the pericranium, there were seen distinct red lines along the course of the frontal and sagittal sutures; and the same appearance was noticed on the inner side of the bones, when the calvarium was removed. Serum was found effused between the membranes; and the vessels of the pia mater were more than usually filled, exhibiting the general appearance of inflammation. The convolutions of the anterior lobes were very soft, more particularly those lying on the central parts of the orbital plates of the frontal bones; so that, on lifting them up to divide the nerves at the base, the fingers penetrated them. The corpora strata, or great anterior ganglions, from which emerge the anterior convolutions, were also exceedingly soft; while the posterior ganglions, or optic thalami, and the convolutions proceeding from them, were of the natural consistence.

It should also be observed, that the child had, by continual scratching, produced a small wound at the lower part of the forehead, in the mesial line, where the convolutions were found most soft and altered in texture. (Query, was this the effect of the pain occasioned internally?)

Now, although on many children the fright would hardly be sufficient to account for the cause of so much mischief, it will appear more evident on relating the predisposing circumstances. The parents had previously lost a child from acute inflammation of the brain, about the same age (two years and a half) a period of life at which this disease is very frequent. The temperament of this boy was nervous and sanguine, and he shewed great cerebral activity. Before the immediate cause of this attack, he had been visiting at an aunt's, where he had been indulged, and the functions of the stomach had become deranged, so that the mother even suspected he had received some injury while from home.

This case appears to be in consonance with the physiology and structure of the brain, as shown by Dr. Spurlingheim, and which affords the only satisfactory means of explaining the direct effects of the injury sustained, viz. loss of intellectual functions, combined with immediate injury to the convolutions belonging to the intellectual operations.—London Med. and Phys. Jour. March, 1833.

18. Case of alvine concritions discharged through the partes of the abdomen. By Frederick Granger, Esq.—On the 20th of November, 1831, I was requested to visit Mrs. W., a widow lady, aged forty-two years, of spare make and delicate habit, residing about four miles from Bristol. I found her suffering intense and continued pain in the abdomen, more particularly in the right iliac region, increased by pressure, with thirst, heat, anxiety of countenance, a hard quick pulse, vomiting, constipation, in short, presenting every character of acute enteritis.

I learned that in the afternoon of the preceding day, she had returned from a walk, cold and shivering, with slight spasmodic pain at intervals in the part particularly referred to, which had considerably increased during the night, without any remission for some hours before I saw her. My inquiries respecting her diet did not elicit any error committed. The liberal and repeated abstraction of blood from the arm (which was highly cupped and buffy,) the application of leeches to the abdomen, with aperients, injections, &c. and rigid antiphlogistic treatment, removed the acute stage in a few days, and in about three weeks my patient (although very much debilitated) had lost the more urgent symptoms, but still complained of some degree of pain and tenderness in the part originally affected, and on minute examination a tumor deep-seated was sensible to the touch. The occasional application of leeches afforded temporary alleviation, but the tumor gradually increased, accompanied by rigors and frequent lancinating pains, indicating the formation of matter. A linseed-meal poultice was accordingly applied.

Towards the latter end of January 1832, the tumor had attained the size of half of a large orange, the base extending to the anterior superior spinous process of the ilium on one side, nearly to the median line on the other, and
Pathology.

Poupart's ligament below. Fluctuation was now distinctly felt, and about the commencement of February a small ulcerated opening (situated exactly in the centre of a line drawn from the umbilicus to the anterior superior spinous process of the ilium) gave vent to a healthy purulent secretion, from which she experienced partial relief. After some days the discharge (which had not been very copious) diminished, and the orifice occasionally closed. Great suffering supervened; the base of the tumor feeling hard and dense, a probe at this time, when passed through the orifice, dropped by its own weight an inch and a half perpendicularly, the patient lying in the recumbent position. In the middle of February, from the irregularity of the discharge, I was induced again to pass a probe, and at about an inch from the surface, feeling distinctly a hard substance, I communicated the fact to my patient, who seemed much gratified at the prospect of relief. This substance daily approached nearer to the surface, and early on the morning of the 7th March, I received a note from the sister of the lady, "begging me to see her as soon as possible, as something black appeared to be working its way from her side, and she was suffering excruciating pain." I found, on my arrival, that an alvine concretion had just escaped through the opening, to her great relief, and two days afterwards a second followed the same track.

From this period she gradually recovered her health, although the cavity (which was considerable) filled up very slowly, not having finally closed until March, 1833. She is now quite well, but has a sensation of contraction and slight pain in the part, on taking a long walk, or using great exertion.

These concretions resemble nutmegs, both in shape and size; the largest measures in circumference three inches in its longest axis, and two inches and a half around its shortest, weighing seventy-four grains. The smallest measures two inches and three-quarters in the circumference of its longest axis, and is of equal bulk with the other in its shortest, weighing sixty-five grains. Having made a section of one, I find it of about the consistence of hardened cerumen, and formed of concentric laminae, alternating in a dark-brown and yellow hue. A portion when heated melts like wax, and emits a flame if ignited. They are both extremely rugged in appearance, similar to shagreen, with the exception of the extremities. Here they are smooth, and apparently worn by friction. Whether they were originally in the gall-bladder or intestines, I am unable positively to determine, although I should much incline to the former opinion, both being specifically lighter than water, feeling spongy to the touch, and not containing, centrically, any foreign body serving as a nucleus. It would appear from the direction of the passage and corresponding aperture, that they escaped straightway from the termination of the ileum or the caput coli, as there was no tortuous sinus indicative of their having traversed between the muscles from a distance. They are deposited in the Museum at the Bristol Infirmary in the valuable collection of my friend Mr. Richard Smith.

Bristol, April 25, 1833.

P.S. In terming these concretions alvine, I am fully aware that I do not strictly accord with the common acceptance of the word, but the high authority of Cooper's Surgical Dictionary decides that all concretions passing through the alimentary canal are properly so called, whether biliary, gastric, or intestinal.—London Lancet, May, 1833.

19. Foreign Substance in the Trachea. By Cha's Hooker.—On Nov. 15, 1833, I communicated two cases of Abscess in the Lungs, originating from foreign substances introduced into the trachea. In Case II., that of a child nine months old, it was stated that the foreign substance in the trachea was probably some portion of a green cedar bough, with which the child had been playing, when he was first attacked with coughing.

Since the publication of this case, the foreign substance has escaped through the side, after remaining within the chest eight months. It proves to be a twig of cedar, 3/4 inches long, with four lateral branches, the shortest of which is 4, and the longest 3 of an inch long—the main twig and the branches being
covered with leaves, which appeared quite fresh. The twig, it appeared, passed out between the sixth and seventh ribs at the point where the puncture had been made, about seven months previous, in performing paracentesis thoracis—it then insinuated itself through the cellular substance, under the skin, and eventually pricked through the skin, about 2 inches anterior to the point where it passed out between the ribs.

The occurrence took place about two weeks since. Two or three days previous, the right arm became partially paralytic; which affection still continues, though the general health of the child is rapidly improving.—*Boston Med. and Surg. Journal, Dec. 1833.*

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**THERAPEUTICS.**

20. On the employment of Salicin in Intermittent FEVERS. By Maurice RUEF, M. D.—In the course of the scholastic year of the medical clinic of Strasbourg, M. Ruel, made numerous trials to test the efficacy of Salicine, so highly recommended by Lebroux in the treatment of intermittent fevers. It was only employed in those cases in which the disease was exempt from all complications. In the first case, which presented itself under the quartan type, it was employed in doses of eight grains gradually increased to twenty. The patient took altogether 258 grains; but the accessions continuing without any abatement, and evincing a tendency to become more exasperated, recourse was had to the sulphate of quinine, eight grains of which sufficed to arrest the disease. Salicine was also employed in four other cases of simple intermittent, and in two of a masked character, without any better success. The same failure attended the employment of pipericine recommended by Dr. Mélé of Nouvarais. It was only administered in a single case—*Archives Generales, January, 1833.*

21. White agamic as a remedy for the profuse perspiration of phthisical patients. By M. BRISON.—From the result of observation, M. Brison deduces the following inferences relative to the administration of this article.

1. That the white agamic may be employed with advantage as a remedy for the nocturnal sweats of phthisics.
2. That where there is no diarrhoea, in doses of six, eight or ten grains administered for several days in succession it checks the night sweats.
3. That in the same doses combined with the gummy extract of opium or syrup diacodium, it may be advantageously employed with the same view, even where there is slight diarrhoea. When the latter affection becomes fixed the agamic although combined with opium ceases to be useful.
4. That it aggravates those diarrhoeas which have rebelled against opium, and ought not to be given to phthisics under such circumstances.
5. Finally, that where it proves efficacious in arresting the sweats, it renders the sleep more tranquil, and retards the emaciation; and although it is not competent to cure the disease, it checks its progress, by subduing one of its most serious and distressing symptoms.—*Archives Generales, January, 1833.*

22. Treatment of phthisis pulmonalis. By Giovanni DE VITIS, physician in chief of the army.—Dr. Vitis reports that from the first of May, 1822, to the eighteenth of January 1832, two hundred and sixteen patients affected with pulmonary complaints, were discharged cured from the military hospital of Capone. Of this number forty were affected with chronic catarrh; forty-seven with phthisis in the first; one hundred and two in the second, and twenty-seven in the third degree.

A table spoonful of the following solution was administered night and morning: tartarized antimony gr. iii, infusion of elder flowers gr. v, simple syrup gr. v. The patients used hydrogaia for common drink, and their diet consisted of rice and sugar; those who had colliquative diarrhoea, instead of the rice, took a cup of chocolate with one biscuit night and morning.
When the first dose of the solution did not excite vomiting a quarter of an hour after it was administered, a second when the subject was strong and robust was sometimes given. Where it occasioned profuse alvine evacuations, the medicine was omitted for a few days, and the following was substituted: Pulverised digitalis gr. x.; Torrified Ippecacuanha gr. x. to be made into ten pills, of which one was given every hour or oftener until the evacuations were suspended.—Archives Generales, from Annali Univers. di Med, Dec. 1892.

23. Dr. Cross, of Lexington, Ken. says: The practice of giving mercury during the existence of ptialism cannot be too severely deprecated. If mercurial ulceration should progress rapidly, or threaten extensive sloughing, we should have immediate recourse to the internal as well as the external use of nitric acid. We have never seen a case so obstinate, that it would not yield to the energetic employment of this article. Indeed, we had recently an opportunity of testing its powers in an infant, that had been violently salivated, and in whom extensive sloughing was threatened. The remedy was completely triumphant. To an adult we give ten drops of the acid in a little syrup three times a day; the dose to be gradually increased. The ulcers to be washed with it in a state of dilution, but sufficiently strong to produce considerable pain. This article is to be used in the manner directed until all the sloughs have parted and the ulcer exhibits a healing aspect, which will be in the course of two or three days.—Trans. N. York, Med. Soc.

24. Concerning the duration of Fevers. By Dr. Latham.—We hear nothing now about critical days. Either they have not belonged to the fevers of our own times, or they have escaped the observation of living physicians. From what I have myself seen, I never should have been led to suspect any such thing as a general law of fevers, leading them to terminate on certain specified days by a crisis.

But we do still hear not a little about fevers coming to a close on one day in preference to another. The fourteenth and the twenty-first days are said to be those on which we may most confidently look for their cessation; and of these two propitious days, popular belief is more in favor of the twenty-first. I hardly ever attended a case of fever in private practice that I was not asked, "whether it was a twenty-one day fever?" I speak now of the termination of fever independent of crisis.

It is remarkable how many opinions upon medical subjects have been admitted not only without proof, but while the evidence necessary to constitute the proof (as a little consideration might have shewn), was hardly attainable. Hence, before the admission of any opinion, it would be well first to make up our minds upon the sort of evidence required to substantiate it, and then to go in search of that evidence; for thus we should find how little warrant we have for half the conclusions we pretend to have reached.

There is an opinion that fevers have an exact duration to the very day. In order to prove its truth, our evidence must go to two points; it must establish beyond a doubt that the fever actually did begin on some one certain day, and actually did cease on some other certain day. Both terms must be proved with the same exactness. Common sense at once points out this to be the evidence required; but if it should turn out that the evidence required is not to be had—even that it does not exist in the nature of things—it would be idle to talk of a fourteen and twenty-one day fever.

Now according to my observation, there are commonly circumstances enough to fix the certainty of the first term, but seldom enough to prove the second. In the great majority of cases, a rigor, or a notable chilliness, so plainly leads the way in the order of symptoms, that the patient himself refers the beginning of his complaint to the day on which it occurred. This is the best evidence of commencing fever; and even where there is no such rigor or chilliness, the patient is often able to speak so clearly of a pain in the head, or a sickness at the stomach, accompanied by an entire change in every bodily and mental feeling, and to
assign them all so distinctly to a certain day, that we cannot help regarding that day as the commencement of the fever.

And thus we are accustomed to find one term of the fever distinctly defined in the majority of cases.

In a few cases, however, there are no such circumstances, none which sufficiently mark a distinct transition from health to sickness on a certain day. The constitution is not alarmed (as it were) by any sudden inversion of its healthy feelings and functions, but the symptoms steal upon the patient by little and little, and gradually involve him in a fever, while he is unable to say on what particular day he began to be ill.

But with whatever certainty we may assign the beginning of fever to a particular day in any case, we obtain no exact measure of its duration, unless we can assign its termination to a particular day with the same certainty.

Fever can only be punctually known to terminate on a particular day by some marked change in the symptoms—by circumstances shewing the transition from disease to health at the end of the fever, as distinctly as the transition from health to disease was marked at its commencement.

Such a change at the end of fever, it has occurred to me to witness in very few cases; and then the circumstances denoting the change have been those which constitute a crisis.

A clean and moist tongue, a reduced pulse, abated thirst, and healthy sensations of body and mind, all arising in the course of a few hours, cannot be mistaken, and they fix the date of convalescence to a certainty. But all these notable changes are not apt to occur thus quickly and simultaneously, unless led on by the spontaneous exuberance, of some natural secretion, especially that of the skin.

Ordinarily they occur after a different manner. The tongue becomes more and more clean and moist, and a day arrives when it is absolutely so. But this may not happen until, judging from the pulse and other symptoms, we may have already considered the patient convalescent. So, too, the pulse becomes less and less frequent, and a day arrives when it reaches the numerical standard of health; but this may not be until a clean tongue and an improved appetite have proclaimed the patient several days advanced towards health.

If physicians had agreed to regard any single symptom, or any two or three symptoms, as pathognomonic of fever, then, as soon as these ceased, they might safely pronounce that the fever was gone. But this is not the case. It is from a great variety of particulars that we make up our mind upon the existence of fever, being unable to assign to each symptom the exact weight which it should have in fixing the nature of the disease: and thus, wherever fever has existed, it is only from the like variety that we can learn when it has ceased; not knowing that the disappearance of this or that symptom necessarily carries along with it the disease itself.

But although, except in the event of a crisis, fevers may not furnish data sufficient to fix their termination punctually to one day; do they not furnish enough to comprehend it within the space of two or three days? And thus, if they do not come to their close exactly on the fourteenth or twenty-first day, do they not, nevertheless, end sometime about one or other of these days—that is, towards the conclusion of the second or third week? We shall see.

I have endeavored to note the beginning and the end of fever in 309 cases. By noting the beginning, I mean the very day of its commencement; by noting the end, although I have specified a certain day, I do not wish to imply more than that some time about that day the patient began to get well.

The data upon which we rest our belief that the disease is past and health returning, are, that the skin has become cool; the tongue is of an uniform moisture and color, though it may not yet be entirely clean; the pulse is much reduced in frequency, though it may not yet have come to the standard of health; that the appetite for solid food has returned; that the functions of particular organs which have suffered harm or hindrance are restored; and, above all, that
The patient has again become conscious of natural and healthy sensations. It has been from data of this sort that, in drawing up a short tabular view for the purpose of illustrating our present subject, I have ventured to mark the day _somewhere about which_ each of nearly three hundred cases of fever terminated. And in this table their termination (I am persuaded) is assigned to a particular day with as much accuracy as the nature of the subject will admit. At all events, be the accuracy what it may, it belongs in the same degree to the numbers of one day as to those of another.

Of 300 cases of fever, there were twelve of which the duration could not be satisfactorily calculated. The remaining 297 cases terminated upon the days specified in this table.

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Taking, then, the numbers exactly as they are represented in the table, it would appear that fewer cases terminated on the 14th and 21st day than on several days both prior and posterior to each. Out of two hundred and ninety-seven cases, eight only terminated on the 14th, and eight on the 21st.

For a fever to end before the 10th, or to be protracted beyond the 31st day, is unexpected and unusual. Thus a range of twenty-two days embraces the period within which the majority of cases come to their close; and, within this range, the table shews that there are twelve days (above half) more favorable to the termination of fever than either the 14th or 21st. Two equally favorable, and six only less so.

But let us allow a still larger latitude in seeking to know whether fevers are apt to come to their close _some time about_ the 14th or 21st day. Let us take a range of three days, by joining each of these with the day immediately before and the day immediately after it; and then, adding together the number of cases which ended on the 13th, 14th, and 15th, and on the 20th, 21st, and 22d, let us see what proportion the sum bears to the number ending on any other three days taken consecutively.

Thus on the 13th, 14th, and 15th days, taken together, twenty-nine cases terminated; and on the 20th, 21st, and 22d, taken together, twenty-four cases terminated. These are our standards of comparison. But on the three days,
preceding our first standard of comparison, viz: the 10th, 11th, and 12th, twenty-eight cases terminated; and on the three days succeeding it, viz: the 16th, 17th, and 18th, forty-two cases. Again, on the three days preceding our second standard of comparison, viz: the 17th, 18th, and 19th, thirty-six cases terminated; and on the three days succeeding it, viz: the 23rd, 24th, and 25th, twenty-five cases.

Finally, then, from the event of these two hundred and ninety-seven cases, no proof can be derived that there is any law of fevers inclining them to terminate upon one particular day more than another, or even some time about a particular day, whether it be the 14th or 21st, or any other day.

I hope you do not think me presumptuous for thus calling in question a much received opinion respecting the duration of fevers; and venturing to suspect that medical men in general have not been quite aware how much evidence is required to substantiate its truth, and have thus been content to let it pass.

The result of my experience points to the conclusion, that the duration of fevers is indefinite. But the cases which furnish the materials of my induction occurred between 1826 and 1832 at St. Bartholomew's Hospital. So that mine is the experience of a particular time and a particular place; and I do not claim for it more than it is worth.

There are varieties found in many diseases which bear the same name, and in none more than in fevers. And although all fevers, wheresoever they are found, may have something in common which respects their essence, yet the fevers of different times and places admit of so great varieties that no physician, drawing from his own experience alone, (however great it may be) must venture to speak of what fever is absolutely.

From the forms of fever which passed under my own observation at St. Bartholomew's Hospital between 1826 and 1832, I cannot fix upon any as a specimen of the fever of all places; not of the fever which occurred at the same time in Europe, or even in other parts of England. But perhaps I may safely rely upon my own experience of what occurred at our largest hospital during this period for furnishing me with just examples of the fever simultaneously prevalent in London, and may be allowed confidently to affirm that, during the last seven years, no such thing has occurred in London as a fourteen or twenty day fever, or a fever of any definite duration whatever.

But is it not among the characteristics of certain epidemics that they have, a definite duration? Not to recede from the particulars of my own observation, I should say that at one time the prevalent fever may be generally long; at another it may be generally short. This is all I know. But, upon the whole, I should always prefer to calculate the probable duration of every particular case by its own circumstances, by things contained in itself, rather than according to any supposed law of the epidemic.—London Medical Gazette, June, 1833.

25. Vaccination in Hooping Cough. By T. W. Chevalier.—Some time ago a letter was published in your valuable journal, vol. viii. p. 46, from a correspondent, signing himself "H. M. M." on the efficacy of vaccination in arresting the progress of hooping-cough, in patients who had not been previously subjected to the former disease. Your correspondent encouraged us to hope for an account of some cases in which he successfully treated the cough by that means; and you in a note expressed a wish to receive them, in which I trust you will allow me, though so long afterwards, to join you, as they have not yet appeared.

In Dr. A. T. Thomson's interesting lecture upon hooping-cough, reported in your Gazette, vol. vii. pages 801—807, we are informed that the practice of vaccinating for the cure of the hooping-cough was first suggested in Germany, and that it is said to have been confirmed by some more recent experience in America. The doctor justly remarks that the remedy (although proved valid) must be of very limited utility, as it is not likely that vaccination should be delayed, with the risk of small-pox being taken in the interval, in order to keep it in reserve as a remedy for hooping-cough; but I am sure that he will not, on that account,
Therapeutics.

Depreciate its importance in the distressing and unusually dangerous case of very young infants, who occasionally suffer from the cough, and not uncommonly fall victims to its severity.

Since the publication of the letter from H. M. M., only three opportunities have occurred to me of putting to the test of experiment the power of cow-pock to arrest hooping-cough, and it succeeded in them all.

The first was the son of P. B. Esq. one of my personal friends, a child of one year, who had for some weeks been affected with obstinate fits of coughing, and slight spasmodic effort in the next subsequent inspirations. I requested his father to confide in me, that the infant should come to no harm, and, without giving it any medicine, to await the hoop. This child at length hooped decidedly during three or four days, so that I had no longer any doubt of the nature of the disease. It was then vaccinated, and cured completely within the week.

The next case was an infant, under two years of age, the child of Major Fitz-M. — who had very recently lost a still younger babe from the disease. The little patient had been suffering from it for two months and upwards; and neither she nor the deceased had ever been subjected to the cow-pock. He was going into Yorkshire immediately, and I advised him as soon as he got there, to allow it to be vaccinated, which was done, and he has since informed me that the cough was completely cured by the eighth day.

My third case was a dispensary patient for fractured radius, a boy of three years old. He was brought to me about four months since, and had then been suffering from the cough for as long a period. I vaccinated him, and he ceased to hoop as the cow-pock vesicle attained its acme; a very slight cough remaining, however, when I last saw the child, a fortnight afterwards.

Dr. Thompson particularizes the third week from the commencement of the hoop, as the proper period for vaccination: the evidence of the above cases would extend that period without limitation; but I am far from offering them as sufficient to establish more than the propriety of trying the efficacy of vaccination, in every case of hooping-cough which has not been preceded by the cow-pock, or variola. My own practice is to decline vaccinating infants, unless under circumstances of exposure to the variolous infection, until they attain the age of eight or ten weeks, when the red gum is probably disappearing, and the process of teething is still to be commenced; and it is at this early age that many a life, we know not how valuable, is lost from hooping-cough—to such tender sufferers always a very formidable disease.

There is a very rare complaint, of which I have seen but two or three instances, and only one that terminated favorably. It consists of nothing else but the hoop, or a more violent spasm, producing death, without any cough preceding it. In the successful case to which I refer, the cough was produced after some months, and the child was soon cured. In the others, although they continued as long a time, no remedy appeared to be of the least avail. It would be exceedingly interesting to ascertain whether vaccination be a cure for this frightful and most fatal disorder.—London Med. Gaz. June, 1833.

26. Gangrene of the Lungs—Case of recovery. By J. Wyatt Crane.—On the 24th Oct. 1832, Wm. Christie, aged 29, a saddler, living in Carrington-street, May Fair, was admitted a patient of the St. George's and St. James' Dispensary, under my care. On going to visit him at his house, I learned that he had labored under dyspepsia for about five years; that two years ago he suffered an attack of pleurisy, since which he had never been free from cough; that though, for the fortnight which immediately preceded his present attack, he had returned to his work, yet for the four months prior to that period, he had been under medical treatment for hemoptysis: that up to the time of his seizure he had lived very regularly, and had been exposed to no cold or moisture; and that on the evening of the 23d October, after having partaken of some light supper, which was not usual with him, he was attacked about 11 o'clock, with violent vomiting, which, when the ingesta were discharged, consisted of a limpid fluid (not unlike the cholera rice-water,) to the amount of about a wash-hand basin nearly full, before
the vomiting ceased, at five in the morning. He was likewise affected with pain under the left breast, dyspnoea, and aggravation of his usual cough. A gentleman of the neighborhood was called in, who bled him, applied a large blister in front of the chest, and administered some medicines.

On entering his room, I found him in bed, lying on his back, propped up by pillows; face congested about the forehead and eyes, from the vomiting; dyspnoea and pain in the side diminished; cough and expectoration troublesome; inability to lie on either side; bowels constipated; pulse full. I prescribed a cathartic, and put him on the use of the tartrate of antimony, beginning with gr. 1 in 2 jss. of vehicle, to be taken three times a day. On the 29th he again complained of the pain in his left side, for which I ordered him a blister and increased the antim. tart. to gr. iss. taken as before. On the 31st, the symptoms having persisted, the dose was increased to gr. ij. three times a-day. This treatment was continued to the 5th November, when the tolerance of the medicine ceased; at which time a great change took place in the symptoms, a most offensive gangrenous fætus being diffused through the room by the cough, breath, and sputa—which last, from their previous state of mucus, now became of a greenish yellow purulent appearance, alternating or mixed with a reddish-brown.

The debility, which had been extreme from the first, became now more marked, and the pulse smaller and more frequent; the countenance was pale and sallow; the cough and expectoration incessant; decubitus as before, only on the back; the tongue, however, was clean and moist, and the patient had a slight appetite. The chest sounded remarkably clear on percussion, and, when measured by my friend Dr. Burke and myself, was found to be equal on both sides; but the lifting the patient upright in bed gave rise to such a prostration of strength and violent fit of coughing, that we feared he would not have rallied it: he was, therefore, not again moved for auscultation for any purpose. The stethoscope was applied to the front of the chest by Dr. Macreight, Dr. Burke, and myself; but nothing was detected, more than occasional rôle muscique. I do not, however, present the examination by the stethoscope (at this time first applied) as by any means a complete or accurate one; as, independently of the position of the patient, on account of the horrible odor it was found impossible to remain for the necessary time in close proximity to him.

The symptoms now unequivocally announcing gangrene of the lungs, I felt at some loss about the fitting treatment, but prescribed a demulcent mixture, containing oxymel scillae and tra. opii, with pills of sulph. quina, gr. j. three times a-day; regulation of the bowels, when confined; and any mild nutritious diet which he might fancy. The room, too, was fumigated with cloths dipped in a solution of chloride of lime, and hung in various parts: they were found, however, to be quite ineffectual in overcoming the odor; I therefore had saucers, containing the dry chloruret of lime, placed on the top of the bed and on the shelves at the top of the room, and an acid constantly added to disengage the chlorine. Even this, however, did not prove efficient in completely purifying the apartment—the insupportable odor was so constantly emanating from the breath, the cough, and the sputa.

On the 8th November, ung. antimonii tart. was ordered to be rubbed over the front of the chest, and on the 12th six leeches were applied, for pain under the right breast.

On the 14th December, there being no alteration in the symptoms, I omitted the mixture, continuing the pills, and increasing the quantity of quinine to 2 grn. three times a-day. I also prescribed the inhalation of chlorine, 15 drops of the saturated solution, five or six times a-day. The first time this was used, it created some slight irritation, in consequence of which, I combined it with tr. hyoscycami, which last was soon discontinued, and the quantity of the chlorine increased gradually to 30 or 40 drops. Soon after this treatment was commenced the cough became less troublesome, the odor was diminished, the reddish-brown sputa became less frequent, and the patient appeared to be a little stronger; decubitus still only on the back, and greenish-yellow sputa constantly present. The amendment of the patient now became gradual.
On the 21st January, he was enabled to lie for a short time on his left side, and to sit up a little while. The inhalation was omitted for a few days; when the spuits again becoming very offensive, and mixed with reddish-brown in small quantity, it was resumed, and the other treatment continued.

On the 15th February, he was so far recovered as to walk from his house, in Carrington-street, to the Dispensary, in King-street, and back; and was able to lie, without inconvenience, on his left side, though not on his right. The cough, very much diminished in frequency and violence, continued, and the matter expectorated still presented the greenish-yellow appearance, though the bad odor was now very faint. At the beginning of April he returned to his work, at which he has remained up to the present time. He is still troubled with a slight cough; not oftener, however, than four or five times in the course of the day; the character of the expectoration is quite changed, being destitute of odor, and in appearance merely mucus. He lies indifferently on either side, though more comfortably on the left than the right; has a good appetite, sleeps well; and considers himself to be in a stronger and better state of health than he has been in for two years.

Laennec states that he has seen several cases terminate favorably; he has not, however, given the particulars of any. On searching into the books in my own library, I find a favorable case quoted from the Revue Medicale, in Dr. Johnson’s Journal, vol. ix. new series, p. 168; and there may be other cases on record, for I have not had an opportunity of referring to any other works than those immediately within my reach.

Since the above was written, I find, in the Gazette des Hopitaux, of the 28th ult., an account of five cases of gangrene of the lungs, treated at La Pitie, by M. Le Baron Louis; two of them terminated in recovery. M. Louis considers fumigations of chlorine as one of the best means of treatment. Like many other French pathologists, he is of opinion that gangrene of the lungs is analogous to pustule maligne, and that it is not consecutive to inflammation. In the case which I have detailed, it appears to me to be doubtful whether the inflammatory symptoms resulted from the gangrene, or the gangrene from the inflammation: I rather incline to think that the former was the case, as the patient had been exposed to none of the causes of pneumonia or pleuritis, and the symptoms seemed rather to indicate a partial than a general inflammation.—Ibid.

27. Rheumatic Gout cured by the “mineral magnet.” By E. S. Blundell. The subject of this case, C. W.; age 45, a journeyman printer, had enjoyed tolerably good health, until within the last four months, during which time he had been attacked with rheumatic gout so severely, as entirely to prevent his performing the ordinary duties of a printer. He had been several weeks under medical treatment without experiencing much relief.

His countenance was pale and anxious, skin cold and clammy, pulse 65 and small, tongue slimy and spongy; he experienced a numb pain in the head, sleep but little, being prevented by the pain in his limbs, appetite bad, bowels and other functions natural. His frame was very much emaciated, and his general appearance indicated great constitutional debility, the result of long and severe suffering.

He complained of a scalding sensation in the articulations of the ankles, right knee, and left wrist, which were stiff and swollen, but not much inflamed. The tendons which pass over the insteps felt like tense chords. He experienced considerable pain in the feet and ankles when standing or walking, and he was three hours in hobbling (to use his own expression) to my residence, a distance of two miles.

June 8. The pain and stiffness being more intense in the articulations of the right knee and ankle, I preferred operating on them, and commenced by passing the magnet six or eight times round the joints. The patient was immediately relieved. I requested him to rise from his seat and walk two or three times round the room, which he instantly did, and said that he had not been so easy and com-
fortable for some time. A few directions were given respecting a more generous diet, and the patient was desired to call again on the following day.

9. He states that he remained free from pain until the evening; passed a more tranquil night, and perspired copiously; he was again subjected to the magnetic treatment with the same favorable results.

10. The symptoms appear to be greatly mitigated; he has had a good night's rest; tongue cleaner, pulse stronger; his ankle is not so stiff, and less painful. I magnetized him, and he was again relieved.

12. Complains of pain in the left knee. In every other respect he is rapidly recovering. I subjected the knee to the same magnetic treatment, and he was instantly relieved.

14. Is in every respect better, the right ankle and knee have regained their natural size, and he walked to my house within the hour without the aid of his sticks. Again magnetized.

16. The pain and swelling of the left lower extremity nearly gone; health much improved, can walk with ease.

19. Doing well.

Returned to his work.

July 2. Has up to this date experienced no return of pain.

I have had two other precisely similar cases under the same treatment. They have been attended by equally favourable results. The great similarity, however, between the three cases, renders it unnecessary for me to give a report of more than one of them.—London Lancet, July, 1833.

28. Case of hydrocephalus. By THOS. STEWART TRAILL, M.D.—William Da C., st. twenty months, previously a fine healthy boy, became the patient of my friend, the late Mr. Reay, on the 24th of April, 1830. He then labored under a slight remitting febrile attack, seemingly arising from the state of his digestive organs, attended with some cough, and occasional fits of screaming. Calomel with jalap, seammony, and antimonial powder, were successively administered, with relief to the symptoms, but still the remittent fever continued; and Mr. Reay perceiving some tendency to squinting, began to dread that it would terminate in hydrocephalus, and I was called in on May 14th, when I found the child very hot, with a rapid pulse; the alvine discharges ill digested and extremely offensive; the abdomen, though not tumid, felt doughy or inelastic; the tongue was furred; there was no marked impatience of light; the pupils regularly contracted; but the child occasionally screamed without apparent cause, and the urine was scanty. He had cut all the incisors, the canine teeth, and four of the first molares; smart doses of calomel and jalap, with a mixture containing squill, were prescribed, while the head was ordered to be kept cool by an evaporating lotion. 15th. Bowels freely moved, fever diminished, stools improved. 16th. At one this morning I was summoned, and found the child in a severe convulsive fit. Gums immediately freely divided over the concealed molares. Leeches to the temples. Enemata. The warm-bath. Dose of castor oil.

17th. To day decided symptoms of cerebral affection were present; impatience of light; frequent screaming; convulsive twitches of the limbs. Leeches again applied, and a large blister between the shoulders reaching to the nape. Cold evaporating lotion to be kept constantly applied to the head. Calomel and jalap in repeated doses. 18th. Blister rose well, the cuticle was removed, and the raw surface dressed with unguentum hydrargyri. 19th. Symptoms unchanged. The action of the bowels kept up by small doses of hydr. c. creta three times a day. To-day there is strong strabismus; pupils much dilated, and nearly insensible to light. Yesterday and to-day all the other bad symptoms were increased; screaming more frequent; left side seemed paralytic, while the limbs on the right side were frequently and convulsively agitated. 20th. No improvement; cont. medicamenta. 21st. Repeat the blister as before, and again dress it with the mercurial ointment. Give a dose of castor oil to purge the bowels. 22nd. Bowels active; omit the hydrarg. c. creta;
Therapeutics.

if necessary, give an enema. In the evening castor oil. Pulse, which had been rapid generally, now between seventy and eighty. Omit the cold applications to the head. 23rd. No improvement; urine nearly suppressed; eyes quite insensitive to external objects, but he can swallow easily; calomel and jalap purge; enemata; nitre whey. 24th. Moaning and screaming very distressing; urine very scanty; one side quite paralytic, the other constantly agitated by convulsive twitches. Repeat the blister and dress it as before. Bowels rather costive. Castor oil and enemata. Omit the purgative powders. 25th. The child begins to be under the mercurial influence: blistered surface highly inflamed; simple cerate substituted for the mercurial ointment; enemata as before; convulsive motions less violent. 26th. Less convulsion. Cont. omnia ut heri. 27th. Urine considerably increased. Cont. 28th. Some undoubted signs of improvement; urine passed freely; twitching of limbs and screaming less violent; one of his front teeth loose; gums swelled; bowels freely open; some gripping. Omit the castor oil. A few drops of tinct. camph. comp. to be occasionally given. 29th, 30th, 31st. Improvement progressive, but slow; twitching and screaming much less frequent; nape of neck much inflamed and discharging freely; bowels open; some gripping; urine copious; the paregoric appears to soothe him; anodyne at bed-time. June 1st. Favourable symptoms continue, but the eyes appear insensitive to light, and the strabismus continues; pulse below seventy, rather irregular. Conceiving that the inflammatory stage had subsided, but that the ventricles were still loaded, diuretics were continued, and a small blister was applied to the vertex, over the fontanelle, in the hope of promoting absorption. The bowels open, but much distended with flatus, for which a fœtid enema was given with relief. 2nd. Seems relieved; an opiate was given to-day, which allayed the convulsive motions of the limbs. 3rd. Repetantur enema fatidum, et haustus anodynum, h.s. 4th. Strabismus much diminished; urine in large quantity. Cont. omnia. 5th. Blister on vertex repeated. Bowels bound. Castor oil. 6th. Evident improvement in every respect. He now can distinguish external objects. The loose front tooth was removed by the fingers from the lower jaw, without pain to the child; its root was long, white, and hollow. 8th. Eyes and limbs gradually recovering; urine very copious. 11th. Child so far recovered, that I discontinued my evening visits. An astringent lotion was prescribed for the mouth: the bowels being sluggish, a dose of castor oil was recommended every second day. After the 16th I only saw him twice professionally; Mr. Rosy ceased to attend him on the 11th of July, and he was soon in vigorous health.

The boy remains quite well, and has no mark of having suffered from disease, except the loss of the two front teeth of the lower jaw, the second having been shed in the end of 1830. His countenance is naturally pale, but he has a healthy look; his limbs are strong and muscular; his habits active and lively, his intellect very acute.—Transactions of the Provincial Medical and Surgical Association.—Vol. 1, 1833.—Lancet, June, 1833.

29. Andral on Migraine.—The leading phenomena of migraine, are an internally acute pain, ordinarily confined to one side of the head, often commencing at the back of the eye, thence spreading to the temple and vertex. It is remarkable for disappearing completely, and spontaneously, and returning sometimes with periodical regularity, and always presenting the same symptoms. As to its causes, they are completely unknown. Statistical facts are deficient to show the influence of season. Different morbid conditions of the stomach certainly exercise some influence, but these act only as occasional causes, and it would be wholly wrong to attribute the ultimate origin of the affection to stomachic derangement; for, on the one hand, we see every variety of stomachic lesion occurring without inducing migraine, and on the other hand, we meet with numerous cases of migraine in which the stomach is perfectly free from derangement. Every thing which excites or disturbs the nervous system, may, in the predisposed person, induce an access of migraine. Innumerable organic derangements, such as de-
ranged menstruation, &c., may either excite it originally, or bring it back where it has originally existed. It may occur at all ages, is seen in children of seven and eight years old, and in individuals of sixty and seventy. It generally, when once developed, recurs irregularly for a certain number of years, perhaps until the ages of thirty or forty. Usually, as life advances the paroxysms become less frequent, but this rule is liable to numerous exceptions. The affection is rarely met with unless it has occurred before the age of twenty-five years, but this also is liable to exceptions of sufficient frequency to prevent our regarding it as a general rule. Another influence on the production of migraine is that of hereditary disposition, a fact equally singular and indisputable. I have myself seen, for instance, a whole family thus affected in three generations. The paroxysms of the disease are separated from each other by intervals of perfect health, during which, of course, accidental maladies may occur. Lastly, the migraine, like many other nervous maladies, may have its premonitory symptoms, or these may be deficient, and the paroxysm supervene suddenly without the slightest previous warning.

When premonitory signs do occur, they may be of two varieties, one strictly appertaining to the nervous system, the second connected with the digestive organs, especially the stomach. The former are by no means uniform in their nature or characters. The patient, sometimes, for example, experiences various moral derangements; he becomes sad and melancholy without obvious cause, others have horripilations, shiverings, and general un easiness, as if previous to the attack of fever. The sense of vision is often troubled, dazzling lights are very commonly seen, and sometimes the sight is even lost for a time before the migraine commences. The dazzling may persist until the attack, or, what is curious, cease in an hour or two before it takes place. Objects are often seen confusedly, but this is rather the symptoms of the paroxysm than of its prodrumes. Nor is the sight the only sense affected. In a singular case described by Tissot, the patient was always deaf for twenty-four hours before the migraine set in. The smell may also be impaired or abolished.

The same writer, for example, relates the case of a man who was an inveterate snuff-taker, and who was always warned of the approaching attack, six or eight hours previously, by an inability to perceive the smell or flavor of the tobacco. Such are the premonitory symptoms of the most remarkable kind affecting the nervous system. As to the second variety, those of the stomach and digestive organs, they are much less frequent, and not very permanent. In some rare cases, a notable increase of appetite has been observed. In others, it has been for a time completely lost. In a few individuals, vomiting, diarrhea, or constipation, have also been observed as preliminary symptoms, but none of these are constant or important.

Let us now see the symptoms of the paroxysm itself. The chief of these is intense, exoricuting pain, generally commencing at the orbit, and thence spreading over one side of the head, and the same side, usually, which was affected on previous attacks. To this, however, there are some curious exceptions, the pain in alternate paroxysms affecting the right and left sides successively. Sometimes, even it occupies the whole of the head, but is more violent at one side than the other. In some cases it reaches its maximum at once; in others it slowly attains its chief pitch of intensity, and then as gradually decreases. During the attack the patient experiences the most urgent necessity for perfect repose. The slightest noise exasperates his tortures to an indescribable degree. The ticking of a watch, even, may be a complete torture. The impression of light is equally distressing, and he seeks profound obscurity. The skin of the parts not unfrequently becomes so morbidly sensible, that a gentle touch occasions extreme anguish on the scalp or integuments of the face. The pain is not always, as I have said, confined to one part, or the place of its origin, but diverges and rami-

fies in every direction, and affecting the cheeks and mouth, occasions intense pain on the least attempt to open the mouth, even to speak a word. The occiput, the back of the neck, and the shoulder—nay, even the arms and fore-arms, may participate in this condition.
Therapeutics.

In a few cases, the occurrence of some unusual excretion, at the commencement of the paroxysm, seems to occasion its abortion. Thus vomiting has been known apparently to suspend the access; but these occurrences are comparatively rare.

Besides the characteristic symptoms above described, others may occur of less essential importance, though frequently troublesome in themselves. These belong, first, to the nervous system; secondly, to the digestive organs; thirdly, to the greater circulation; fourthly, to the capillary circulation; and, lastly, to the various secretions. Under the first we may include the occurrence of mental alienation, or delirium, during the paroxysm—a rare event certainly, and one which is but fugitive and unimportant, when it does take place. The lesions of motion are much more frequent and remarkable. In some individuals, strong convulsions are witnessed. These are not always of the same kind. They may be confined to the temporal muscles, and even prove so violent as to drag the sutures of the cranium asunder. At other times they may extend to the adjoining muscles, to those of the face, eyelids, and neck, or even of the entire body. Generally speaking, however, they are not violent, and rather consist of a sort of great trembling of the muscles. The parietes of the abdomen are, in some instances the chief seat of these painful contractions. Various lesions of sensibility may also occur, unusual smells be perceived, a taste experienced like that effected by the galvanic contact of metals in the mouth, the vision be troubled, and a thousand odd delusions of fogs and luminous meteors and arcæ be witnessed. Sometimes the centres of objects, sometimes their periphery, will alone be visible; some see but half the objects they look upon. In short the hallucinations, or aberrations of vision, are almost infinite in number. The last of the nervous complications is the result of the essential and incidental symptoms—namely, extreme fatigue and prostration of power, when the paroxysm has lasted a certain time.

The second series of accidental symptoms refers to the stomach. Of these, vomiting has been particularly signalized. It may occur either at the commencement, in the course, or on the termination, of the paroxysm. The symptom, however, is by no means constant, and cannot, for a moment be regarded as the point of departure of the migraine itself. It is a mere effect of the nervous derangement, as is seen in sea-sickness, and a number of other nervous affections. It has, however, been noticed to exercise an occasional influence in checking the violence of the access, sometimes even of interrupting it altogether, and from this circumstance we may derive a practical hint of some value, as we shall subsequently perceive. The phenomena of deranged circulation constitute the next group of accidental complications. Generally, the pulse is frequent, full, and developed; but what is very remarkable is, that as soon as vomiting takes place, it falls quickly below the natural standard in point of celerity and volume. The fourth set of collateral symptoms originates in the capillary circulation. Congestions may take place on the surface of the affected parts. This may, even in intense cases, proceed to the extent of producing ecchymoses and rupture of the minute vessels, and the skin may acquire a blue tint, as deep as in the algid cholera. All this, strange as it is, is, nevertheless, the mere effect of the nervous perturbation, and the fact is not without useful analytical application. Suppose, for example, we transpose this capillary action to the mucous membrane of the stomach, what a number of phenomena it explains, without forcing us to have recourse to the doctrines of inflammation! This capillary derangement must, I repeat, be regarded as a simple effect of the local nervous perturbation. The secretions may, lastly, swell the list of symptoms. Profuse and scalding lachrymation may take place, the salivary glands pour out large quantities of fluid, and serous exudations render the pained parts completely edematous; the bile may on a sudden be absorbed into the system, and jaundice take place.

The termination of the access may be by a deep sleep; the pain ceases, and the individual awakes well. At other times certain evacuations appear, such as vomiting, or diarrhoea, or sweating, whether general or local. A curious case of
the latter is recorded to have occurred in a man whose migraine always ended in a copious diaphoresis on the skin of both forearms alone. Nasal hemorrhage, too, is sometimes the termination. I know a lady aged 48, subject to migraine for nine years, in whom the paroxysms cease by such a profuse nasal discharge of mucous fluid, that she wets half a dozen pocket handkerchiefs. Tissot relates some analogous cases.

The duration of the access is not fixed. It may last but two hours, or much longer; frequently thirty-six; and Tissot speaks of some rare cases that lasted as long as sixty or seventy. As to its frequency and mode of return, it is often perfectly regular in its period, but more frequently irregular. The interval is very rarely less than four hours. It has been known to occur every day for three years, and to be absent as long as nine years. I know not whether we are to credit a case which is recorded of a female, who, for five years, suffered a paroxysm of migraine every hour, each lasting for fifteen minutes. As to the diagnosis of the disease, that which principally relates to special neuralgia and local organic maladies, I shall now proceed to notice this subject.

The history of migraine then having been sufficiently discussed, I now come to the diagnosis. I have already said, that neuralgia and some other local organic diseases, were the affections most likely to create suspicion in this respect. M. Pierry, indeed, is of opinion, that migraine is nothing more than mere neuralgia. He considers so from the causes and phenomena of the affection. Exercise of the eyes, such as prolonged study, in the first place; secondly, the urgent desire, during the access, for ocular repose; thirdly, the fact that in the vast majority of cases the pain originates in the eye; fourthly, the frequent redness of the external parts of this organ; fifthly, the sympathetic occurrence of vomiting, a symptom so generally connected with operations on the eyes, and especially on the iris. Such are the leading facts which induce M. Pierry to suppose that migraine is, in fact, a neuralgia of the iris and nerves of the orbit. The doctrine is certainly an ingenious one; it repose, too, on facts true to a certain extent. In M. Pierry’s book, however, many cases are described as migraine which certainly were not examples of that disease, and these cases as evidently ophthalmic neuralgia. The just conclusion then is, that there are many neuralgic not migraines, and migraines not neuralgic, strictly so speaking. This is, in point of fact, the sum of our knowledge on the subject. We are not yet entitled to specify the peculiar nerves which are the seat of the disease. Should we ever arrive at that knowledge, the affection will then be classed as a specific neuralgia, and denominated accordingly.

Treatment of Migraine.—The treatment of migraine may be considered in a double point of view; first, during the access; secondly, in the interval. In one access it is simple enough. We must observe profound repose and obscurity. Cold lotions to the forehead produce considerable relief, and with this view the evaporation of ether is very advantageous. A pediluvium is also useful, and if the pain be very intense, and symptoms of congestion evident, venesection and leeches to the temples will be of service. The patient must at the same time avoid stimulating food and drinks, such as spirituous liquors, coffee, &c. But in juxta-position with this fact, it is important to know, that some individuals can prevent the access of migraine altogether, by eating a hearty meal, and thus setting digestion in activity when the premonitory symptoms are experienced. This is a curious and instructive fact. Even a bit of dry bread eaten in proper time, has been known to avert the paroxysm. With respect to narcotics, MM. Pierry and Trouseau attribute much power to them, especially to belladonna. They recommend the application to the painful parts, of an ointment composed of one ounce of lard, and one scruple of extract of belladonna, dissolved in water, and applied to the forehead, temples, or eyelids. I have not had an opportunity of trying this, but I think it likely to prove very beneficial.

In the interval, we must investigate the occasional causes which are found to excite the paroxysm, and act in a corresponding manner. In some simple cases a change of regimen will prove sufficient by itself. Thus Linnaeus cured himself of this affection by exchanging a sedentary for an active life, and by walking
nearly two hours daily, and taking frequent draughts of cold water. When the nervous system is much excited, we must follow the rules I have mentioned in speaking of general hyperesthesia. Sometimes the digestive tube is deranged in its functions, and, in these cases, an uniform treatment is not always applicable; and sometimes we meet with the symptoms of true gastritis, and must act accordingly; again, we find a simple gastric derangement connected with the functions of the mucous membrane, able to be cured by purgatives and emetics; lastly, the case may be a true nervous affection of the stomach, a gastralgia, which antiphlogistic remedies will only exasperate. It is essential to collect these varieties, the last particularly. It is absurd to speak of all these gastric symptoms as inflammatory. Is it inflammation when the patients, as frequently occurs, complain of great pain, &c. in the stomach, and, nevertheless, are relieved by a hearty meal? The state of the circulating system next requires attention. Some migraine patients are liable to palpitations, and when these increase, the paroxysm returns. The cause of these palpitations may reside in the heart itself, in an excessive quantity of the contained fluid, consequent plethora, or in an opposite state, exemplified in many enfeebled and nervous people exhausted by blood-letting, hemorrhage, or other profuse evacuations. Each of these causes, according to its kind, we must combat by venesection, leeches, &c., or by bitters, iron, frictions, and other irritating remedies. The secretions must also be particularly inquired into. Sometimes the migraine makes its appearance after the suppression of an habitual diaphoresis from the feet, axilla, hands, &c. We must then attempt to recall this excretion by the means generally employed. In the case of an individual in whom the migraine supervened on the suppression of sweating of the feet, he was advised to rub the feet frequently, and to sleep with them enveloped in a poultice. The secretion returned, and the migraine then disappeared. The uterine evacuation, lastly, may, either by excess or deficiency, excite this affection, and our treatment must be suitably directed. The works I would advise you to consult on this subject, are the excellent monograph of "Tissot sur la Migraine," the memoir by M. Piorry, and, lastly, that by M. Petitan (fls.)—Lond. Lancet, March, 1833.

30. Muriate of Gold in Dropesy.—Dr. Wendl relates in Rust's Magazin, B. xxv. eight cases of dropesy, of which seven were cured by the muriate of gold; the eighth case was complicated with consumption. This remedy has been employed for several years in the hospital at Breslau, and with success. Most of the cases were the sequels of intermittent fever.—Ibid.

31. Strychnine, in Neuralgia, Periodical Headache, Amenorrhoea, and Hysteria. By R. Rowland, M.D.—I have lately tried the strychnine as a remedy in some diseases in which it had not been previously employed, and should you think the result of my inquiries of sufficient importance to occupy a place in your useful journal, it will gratify me.

The first complaint in which I used this medicine was neuralgia. Its employment was suggested to me by observing the effect which it produced on a paralyzed limb, in which were present at the same time pains very similar to those of neuralgia, and which were soothed by the strychnine in a remarkable degree. I was, therefore, induced to prescribe it in a case of neuralgia, which came under my care at the City Dispensary, and which had resisted the usual remedies. Its first effect was to tranquilize the patient, and to render the neuralgic paroxysm much less poignant. The third day, the peculiar action of the strychnine on the system began to manifest itself; the muscles contracted strongly and painfully; this was succeeded by intervals of relief, both from the pains occasioned by the remedy, and those of the disease. The medicine was then gradually withdrawn, and the neuralgic pains did not re-appear. In some cases the pain was not subdued until the patient was placed under the influence of the strychnine a second and third time, and in others no relief followed its exhibition, the complaint appearing rather to be aggravated than re-
lied. It is, therefore, a matter of great importance to distinguish those cases in which the medicine may be usefully employed from those where it is of no avail, or is prejudicial. As far as my experience goes, the circumstances which appear to contra-indicate its employment, are, pain on pressure over any limited portion of the spine, attended with a quick pulse, and other febrile symptoms. Where these are not present, the strychnine usually succeeds in removing the disease. Even in cases evidently depending upon organic lesion, when administered in small doses, it scarcely ever fails to benefit the patient. I have now a case of spinal disease, attended with the darting pains of neuralgia, which has existed for upwards of nine years, in which the most distressing symptoms are always removed by the strychnine, until its more powerful effects begin to appear. It is then withdrawn for a period, and always resumed at the earnest request of the patient.

The strychnine has also proved beneficial in that class of periodical headache, which cannot be traced to any organic disease, but where the sufferings of the patient are excessively severe. Every practitioner must have seen this complaint, which frequently continues year after year, unmitigated by the host of remedies which may have been employed against it. The patients (usually females) lose nothing of their plumpness, and the pulse and tongue are not altered from their natural state. Although I have not succeeded in entirely removing this form of headache, yet its severity has been greatly diminished by the strychnine.

I have likewise found this medicine extremely useful in amenorrhoea and dysmenorrhoea, but as these complaints arise in very opposite states of the system, some attention is necessary in the selection of proper cases for its employment. As a general rule, it is indicated where tonic remedies, and especially electricity, are likely to prove beneficial. As in neuralgia, the first effect of the remedy is to calm the pain, often very distressing, which accompanies these complaints; then follow its specific effects; and it is remarkable, that in most instances, the twitchings were chiefly felt over the sacrum and pubis, accompanied with a bearing-down sensation. In two cases the catamenia appeared as soon as the patient was once under the influence of the strychnine.

In hysteria this remedy rouses the patient more effectually than any other remedy with which I am acquainted. In one case where the hysterical paroxysms followed each other in rapid succession, and where leeching and cupping over the cerebellum, with the usual anti-hysteric remedies, had been employed unsuccessfully, the patient was roused, almost immediately, by a full dose of the strychnine. The fits did not return, and the torpid state which had lasted many days was removed in a few hours.

The doses which I have employed in the cure of the above complaints are, in neuralgia and amenorrhoea gr. one-sixth of the extract to gr. 1 twice a-day. In chronic spinal disease, where the object is to calm the sufferings of the patient, gr. one-twelfth twice a-day. In hysteria, where it is desired to rouse the patient, I ordered one-fourth gr. three times a-day, at the commencement.

I may add, that I have never seen any ill effect produced by its employment, nor do I believe that it requires such strict watching as it is usual to inculcate. On the contrary, I have found it as manageable as any other powerful remedy.

[London Lancet, April, 1833.]

32. Cases of poisoning by datura stramonium.—In the winter of 1825, I was called in the night to visit Mrs. S. R., who had been afflicted a few days with a severe cold, but who was suddenly affected on the night of my visit with very distressing and alarming symptoms. I found her in a state of extreme agitation, declaring that she should not live, that she had taken poison which would immediately destroy her life.

She was blind; the pupils were dilated to the utmost extent; her pulse was rapid so as scarcely to be counted, and very feeble. She had puked frequently; complained of pain and vertigo and great confusion in the head; faintness, and indescribable anxiety at the stomach; was extremely restless, not at all
Therapeutics.

disposed to sleep; her skin was cold and covered with sweat; countenance wild, exhibiting excessive anxiety and alarm; and notwithstanding that her friends had made every effort to allay her fears, and satisfy her that she had taken nothing but herb tea, she still insisted that she had taken poison and should die.

Alarmed myself at her singular appearance and symptoms, I inquired of her mother, who was an experienced nurse, what she had taken, and learned that she drank freely of a tea of coltsfoot and liquorice, the former having been gathered by the mother herself, and carefully labelled, and the latter had the evening previous been procured of an apothecary.

Fearing that some narcotic poison had been accidentally mixed with the ingredients of which the tea was made, I gave an emetic, which operated freely, without affording relief. I then gave her twenty-five drops of laudanum, in a weak brandy sling, every hour till relief was procured; applied mustard paste to her stomach, warmth to her extremities, and gave her freely of warm aromatic drinks. After six hours of the most indescribable distress and frenzy delirium she fell asleep; and remained in quiet repose for some hours. When she awoke she was calm; so blind as to be unable to distinguish one person from another; pupils of the eyes greatly dilated. She was very thirsty; tongue dry. Vomited frequently through the day. The pulse was frequent and soft.

I was now satisfied that she was under the influence of the stramonium. As I could gain no information from the apothecary, I examined the bundle of coltsfoot, and found mixed with it a considerable quantity of the leaves of the stramonium, which solved the whole difficulty. The thirst, dilated pupil, and dimness of sight, continued for some days, when my patient gradually recovered.

Case II.—On the morning of the 24th of June, 1825, I was requested to visit Miss E. F., who was represented to be in great distress and furiously de-ranged. When I arrived about four o’clock, she had sunk into a state of complete insensibility, was unable to swallow any fluid, or to be aroused sufficiently to take the least notice of me or her friends. Previous to my arrival, she had been greatly excited and delirious. I found that the pupils were dilated, the skin cold and moist; pulse one hundred and twenty in a minute, small and soft; her countenance pale, extremities cold, &c. Her mother informed me that being a little unwell, she had given her some lettuce and gold thread tea, which she took very reluctantly. This was taken at 11 o’clock, five hours before my visit.

I immediately directed that compresses be wet in oil of turpentine and applied to her limbs, while covered, so that rapid evaporation could not take place. An injection of the turpentine, with sufficient laudanum to retain it, was thrown up the bowels. Volatiles were applied to the nose, and warmth and friction to the surface, to excite the action of the skin. Not long after this course was adopted, she was suddenly aroused; was highly delirious, nearly blind, thirsty, mouth very dry. Her pulse varied from one hundred and ten to one hundred and twenty-five, very soft and compressible. If she raised her head from the pillow she had vertigo, vomiting and faintness. These symptoms satisfied me that she had taken some narcotic, and probably stramonium. I called for the cup of herb tea which was still standing, and found that stramonium had been used instead of lettuce in making the tea. I gave her brandy and water, and every two hours twenty drops of laudanum, till the extreme restlessness and distress abated; when quiet sleep was restored, all danger was over, and she recovered very gradually.

Case III.—In October, 1825, I was called in great haste to see Mrs. W., aged about forty, who was represented to be in a profound coma, having slept uninterruptedly all the afternoon and evening of that day.

Mrs. W. had just recovered from an attack of dysentery, of which disease two of her daughters were at this time seriously sick. When I visited the daughters in the morning (it was Sunday, and the rest of the family were at
chuch.) Mrs. W. informed me that she was seriously afflicted with piles, which had followed her disease and were very painful, and she wished me to prescribe for her. I directed her to take one leaf of the Datura Stramonium as large as three of her fingers, and make a strong infusion and take it as an injection. She prepared the remedy and administered it herself, no member of the family having any knowledge of it. When her husband returned from church, he found her asleep in her bed-room. As she had had little rest during the sickness of her daughters, he was gratified to find her so quietly reposeing, and directed that she should not be waked to tea. Before bed-time, however, he became anxious at the length of time that she slept, and attempted to arouse her. All his efforts were unavailing. She was perfectly comatose. Under these circumstances I was sent for. Recollecting my prescription for her in the morning, I hastened to the house, and inquired if she had taken the injection. No person had any knowledge of it. Search being made, however, a vessel containing a large quantity of the leaves of stramonium was found, from which, as I afterwards learned, nearly a pint of strong infusion had been drained off and taken, as directed, by injection, she not knowing that the plant was poisonous.

Her symptoms were of the most alarming character, and exhibited the operation of that dangerous narcotic to a greater degree that I had ever before seen. She was perfectly insensible, as if dead, unless irritated by the harshest means; her pulse was one hundred and twenty in a minute, small and soft; pupils fully dilated; tongue flabby and hanging out of the mouth; surface pale and cold; respiration slow and irregular.

I gave her a wineglassful of oil of turpentine by injection, applied mustard and oil of turpentine to the surface; frictions, volatile, &c.; put into her mouth frequently diluted brandy, spirits of ammonia, and other stimulants. It was many hours before she was effectually aroused. Before morning, by the most persevering efforts, pinching her, stinging with nettles, external heat, internal stimulants and turpentine injections, she revived, and after a while was enabled to tell the story of her proceeding with the stramonium. It was ten or twelve days before she entirely recovered from the symptoms produced by it. The piles were wholly cured, but perhaps the turpentine injections had a share in the cure.

The effect of stramonium upon the pulse is different from that of most narcotics, when pushed so far as to produce ultimate narcosis. I have almost universally found it increased in frequency, but not in force. The utility of opium to allay the peculiar distress, irritability and delirium, produced by this and other dangerous narcotics, is illustrated by the following case of poisoning by Cicutla Maculata, as well as by the foregoing.

Miss G., aged thirty, had been an invalid two or three years. In the course of her illness she lost her voice to such a degree as to be able only to whisper. At this time she was recommended by a friend to take the root of the Angelica Archangelica for its cure, and a quantity of the root was furnished her by her friend, and such a description was given of the plant as to enable her to procure it when the supply thus furnished should fail her.

Her brother, ignorant of the subject of Botany, took the description and went in search of the plant. Soon he returned with an abundant supply, of which she took the usual quantity. In a very few minutes she felt uneasiness at the stomach, sickness and vertigo. In a short time her distress was extreme; her stomach was in an agony of torment; vertigo increased; blindness followed; dilated pupil; coldness of extremities and of the whole surface of the body, which was covered with sweat, and felt more like marble than like the surface of the body. Her pulse was slow and intermittent. Countenance exhibited excessive anxiety and distress. She had also a most agonizing pain in the limbs, attended by extreme restlessness and jactitation. In a practice of twenty-five years, I have never witnessed an appearance of greater suffering. This had existed some hours previous to my arrival at the house. Sensible that some narcotic had been mistaken for the root intended to be used, I called
for a sample. When the root and stalk was brought to me, I found it to be
the Cicuta maculata, Water Hemlock, or Water Fennel, so common in the low
meadows of New England, and which by some medical men has been mista-
ken for the conium maculatum, commonly known as Cicuta in the shop of the
apothecary.

I gave the young lady immediately an emetic of ipecacuanha, which dis-
tressed her exceedingly, and operated repeatedly, without affording any re-
lied whatever. I then gave her fifty minims of laudanum in hot brandy and
water, and applied warmth and friction to the surface. In twenty minutes
she was entirely relieved of the distressing pain in her limbs. The laudanum
was repeated in small and frequent doses through the night. The next day
she took a laxative medicine, after which she recovered very gradually; for it
was a long time before the system recovered from the effect of so dangerous
an experiment, which very nearly cost my patient her life.—Boston Medical
and Surgical Journal, August, 1833.

OPHTHALMOLOGY.

33. Arsenic in Choroiditis by Wm. Mackenzie.—The disease to which I have
given the name of choroiditis, but which perhaps might be more properly called
sclerotico-choroiditis, may be readily distinguished by the following symptoms:

1. A varicose dilatation of one or more of the arteries derived from the recti
muscles, the enlarged artery or arteries ending in a broad lash of small vessels
near the edge of the cornea. It may be the arteries from the upper, lower, outer,
or inner side of the eye, which are thus affected. The upper and outer sides,
however, are more liable than the inner or lower.

2. Under these vessels, the sclerotic has first the appearance of being thick-
ened, but after a time is evidently thinned, so as to allow the dark choroid to
shine through it of a livid color.

3. By and by a protrusion, or several separate protrusions of the choroid, take
place, through the extenstated sclerotics; a symptom to which the term sclerotic
staphyloma has been applied.

4. Dislocation of the pupil; this aperture moving towards the affected portion
of the choroid, in some cases so much as to be placed behind the edge of the
cornea. This symptom is not constant.

5. Specks of the cornea, especially towards the edge next the affected part of
the sclerotics and choroid.

6. If completely uncontrolled, the disease ends in general enlargement and
protrusion of the eye, the cornea becoming totally opaque, the whole sclerotics
thinned, and the choroid exposed; so that the eye is of a deep blue color, with
varicose vessels streaming over it.

After trying in this ophthalmia many remedies, most of which failed in produc-
ing any effect, I have found one which has proved decidedly useful. I am anx-
iou s that other practitioners should try it. It is the arseniate of potas. I be-
gan to use this medicine in cases of choroiditis at the Glasgow Eye Infirmary,
in 1830, and under its influence upon this disease, I have had the satisfaction, in
a number of instances, to observe the varicose vessels to shrink, the blueness to
become white, the tumour of the sclerotics and choroid to fall, and the patient's
health and vision to improve. The dose with which I have generally commenced
is the thirty-second part of a grain, thrice a day, in form of pill. Of course, no
one will expect a large sclerotic staphyloma to disappear under any treatment;
nor must it be supposed that I propose arsenic as a specific for choroiditis, any
more than, in 1828, I proposed the sulphate of quina as a specific for the serof-
ulous ophthalmia. Attention to the general health, and also to the local symptoms,
must not be neglected, although the patient is put upon a course of arsenic.

It was not till I had succeeded in subduing several cases of long continued
choroiditis by means of this medicine, that I was struck with the probability, re-
sulting from the analogy which certainly may be traced in some respects between
the rete mucosum and the choroid, that the diseases of one of those textures might be under the influence of the same remedies as those of the other. Now that I am fully convinced, that inflammation of the choroid, one of the least tractable ophthalmia, is greatly benefited by the same medicine which exercises so powerful an influence over some of the most tedious cutaneous diseases. I am still more led to reflect on such facts as the congenital deficiency of coloring matter in the skin and in the choroid which occurs in the albino, and to suspect that other points of resemblance may probably exist, which have hitherto escaped observation.—London Medical Gazette, May, 1833.

35. On the Use of the Essential Oil of Lemons in various Inflammations of the Eye; with Cases. By John Foote, jun. Esq.—For several years past, the use of stimulants in various external inflammations of the eye has been gradually gaining ground. An opinion formerly prevailed, not only among the public generally, but also very extensively in the profession, that the eye was a very tender organ, and would not bear rough handling. This idea tended, in a great measure, to retard the period when stimulant applications were first employed, and to induce great caution in their use. It was formerly the practice, in many inflammatory affections of this organ, to bleed, cup, and leech, to such an amount, as frequently even to do serious injury to the constitution of the patient; such mischief, indeed, that he would be years in getting over it, and perhaps might never entirely recover from its effects. Even lately, within a few years, a work has been published by Mr. Lawrence, one of the surgeons to St. Bartholomew's Hospital, on the Venereal Affections of the Eye, recommending in the gonorrhoeal ophthalmia, that blood should be drawn as long as any could be obtained from a vein! And what does he present us with as the results of his depleting practice? Truly, a melancholy list of lost eyes. On the other hand, if we look to the reports of Mr. Guthrie on the stimulant plan of treatment in the same affection, we find success attend his practice. I have seen about six or seven cases of this highly dangerous ophthalmia; they have been all treated on the stimulating plan, and have all invariably ended successfully. Having been a pupil at the Royal Westminster Ophthalmic Hospital for a period of nearly five years, I have had ample opportunities of testing the relative value of the stimulating and depletory plans of treatment, and, were all things equal, the fact that the former saves the patient from that abstraction of blood which is frequently urged to a great amount, would alone be sufficient with me to give it the preference: but it has other advantages; it effects a cure in a shorter period, and does not leave behind it, as the antiphlogistic plan generally does, a low or chronic inflammation of the parts, requiring a stimulant application to remove it.

To Mr. Guthrie belongs the credit of having introduced, and followed up to a very great extent, the plan of stimulation in acute external inflammations of the eye. Before his time, the vinum opii, solutions of nitrate of silver in distilled or rose water of various strengths, the unguentem zinici, or the unguentum hydargyri nitritis dilutum, were employed, but not extensively, in the chronic inflammations; while Mr. Guthrie has used them, and stronger stimuli, in the acute stage of the same affection; a step, for the boldness of which, he would have been severely blamed, but for the success with which his efforts were crowned. On the continent, Graefe and Walther, and some other surgeons, employed the solution of the nitrate of silver in purulent ophthalmia; but this application has the inconvenience, that, when employed for any length of time, it has the effect of staining the eye. This was first pointed out in print, by Dr. Jacob, in the Dublin Medical Transactions, but was constantly inculcated at the Ophthalmic Hospital in Warwick-street, to my certain knowledge, both by Dr. Forbes and Mr. Guthrie, the physician and surgeon to that institution.

In the May of 1827, Mr. Guthrie pushed his inquiries still further: he caused an ointment to be made with ten grains of the nitrate of silver to the drachm of simple ointment, and tried this in numerous cases. After several formulae, variously modified, had been essayed, he finally decided on a preparation containing the argentum nitratum with Goulard's extract, mixed up with lard; he also
employed an ointment made with the oxymuriate (the bi-chloride) of mercury, and another composed of simple cerate and the sulphur cupri, five grains to the drachm; but these latter he soon abandoned. These applications were employed by him in the various ophthalmia, acute and chronic, affecting the conjunctiva, the cornea, and the sclerotica; also in cases of nebulia; but in these latter affections the milder stimuli are more properly required, as the disease generally takes a long time for its removal, and a milder, and at the same time a more frequently renewed, stimulus has a greater effect in exciting the secretions to action. The celebrated French surgeon, Dupuytren, employs, in this disease, a combination of equal parts of calomel, sugar, and oxide of zinc, blown into the eye. Various other surgeons have tested the powers of these applications, and all speak in their favor; some more sparingly than others. Mr. Mackenzie, of Glasgow, is one of those who do not speak so highly of these remedies as they deserve; which need not excite our admiration, as he has hitherto employed a bad preparation. Mr. Lawrence has every wish to give the stimulant treatment a fair trial, but he has not as yet employed it in any case.

The theory on which this peculiar plan was first introduced, was founded on an opinion of John Hunter's, which has become almost an axiom in medicine, viz. "that no two diseases can exist at one and the same time in the same constitution." That which he applied to the system generally has been adopted in reference to a single organ of that system: in consequence, it was conceived, that, by exciting a more severe inflammation in the eye than that which already existed, but at the same time of shorter duration, a cure would be effected of the original malady. Whether this theory be or be not a valid one, it matters little, so long as the treatment deduced from it be successful; and that it has hitherto been attended with success, is amply proved by the records in the various medical journals of this and other countries, and by the case-books of the various ophthalmic institutions, where it has been fairly tried. In saying this, I am not alluding to any particular formula, to any peculiar preparation, but to all those remedies which come under the general head of external stimulants. Neither do I mean to aver that in no cases has it been unsuccessful: in some few, probably from idiosyncrasy, or extreme nervousness, the stimulant application appears to have done harm, and was necessarily abandoned; but these serve only to form an exception to the rule.

Under such circumstances, my ophthalmic lore having been acquired in a sthenic school, if I may so term it, it will scarcely be wondered at that, knowing from experience the stimulating properties of the essential oil of lemons, when in contact with the conjunctiva, I should be ready to admit its powers in the treatment of ophthalmia, and anxious to test its properties. For this purpose, the Royal Westminster Ophthalmic Hospital offered me an ample field.

In the year 1829, the following paragraph, which appeared in the Collectanea department of the London Medical and Physical Journal, under the head "Surgery," first directed my attention to this essential oil as a remedial agent in affections of the eye.

"Efficacy of Lemon-juice in some Diseases of the Eye. (From the Journal fur Chirurgie and Augenheilkunde.)—Mr. Weritz thus employs this novel remedy. He cuts a slice of lemon-peel about an inch long and half an inch broad, places the outer part opposite the affected eye, the eyelids being opened, and by slight pressure squeezes out the little drops of volatile oil contained in the tissue of the rind into the eye. The sensation produced is acute, and continues for an hour or two. If the pain caused should be severe, cold applications are to be employed. The oil of the lemon-peel appears to increase the capillary circulation, and to cause the absorption of morbid dispositions.

"From experiments which have been made at La Charité at Berlin, it appears that the following diseases are remedied by this treatment: 1. Inflammations of the eye which are passing into a chronic state, and which affect the external parts, as the conjunctiva, cornea, or sclerotic, particularly if the small vessels are turgid. M. W. has also found the remedy useful in rheumatic, gonorrheal, and scrofulous ophthalmia. 2. In pannus and pterygium. 3. In albigo and
opacity of the cornea. 4. When the texture of the cornea has lost its healthy
density, and becomes soft and spongy. The remedy may be employed frequently
during the day, depending upon the degree of irritation it produces. M. W.
relates seven cases of cures of various diseases of the eye effected by this treat-
ment.”

There are perhaps few persons who are acquainted with the stimulant pro-
erties of the essential oil contained in the follicles of the bark or rind of the
lemon or orange, as in peeling these fruit, it frequently happens that a follicle or
two burst, and a particle of the essence gets lodged in the conjunctiva. It was
probably an accident of this kind which first induced Mr. Werlitz to try its
powers in inflammations of the eye, and thus add another remedy to the list of
the ophthalmic materia medica. Having obtained the permission of Mr. Guth-
rie at a period far antecedent to the time when I actually availed myself of it, I
have recently given this essential oil a trial at the Ophthalmic Hospital, in vari-
ous inflammations, more especially the catarrhal, which the peculiar constitution
of the atmosphere at the present time has rendered epidemic. In the majority
of cases in which I applied it, I found it successful; in a few it appeared not to
be of use, and the application of cupping-glasses to the temple was ultimately
required. It generally caused pain, varying in duration from half an hour to
three, and also in intensity in different individuals. In one person, a gentleman
of the medical profession, having increased vascularity of the eyelid, and who
had been accustomed to have the vinum opii applied, it excited pain to such a
degree that he declared his eye felt as if on fire; but this unpleasant symptom went
off in about ten minutes; another person, to whose eye I applied it said, that the
pain it occasioned was trifling, and not at all to be compared with that which arises
from the application of the vinum opii. Such is the difference of sensibility in
different individuals; and I may add, that both experienced benefit from it. I
have deemed it necessary, in general, to administer aperients and other medi-
cines, in some of the cases in which I employed it, according to the severity of
the symptoms indicating general irritation.

Mr. Werlitz does not apply the oil at all in a scientific or satisfactory manner.
His method of squirting the essence from the rind appears to me to be both rude
and coarse, and could scarcely be employed in private practice; I have, there-
fore, adopted another way, which I shall shortly mention. In strumous ophthal-
mia, it is exceedingly difficult, from the tumefaction of the eyelids and the rest-
lessness of the child, to separate the eyelids as to obtain a view of the eye
itself, and, under such circumstances, it would be next to impossible to keep
them open a sufficient length of time, until the operator shall have properly in-
jected the drop. In the trials in which I have subjected it, I have invariably
used the essential oil of lemon of the shops, and have dropped it in the eye in
the same manner that the vinum opii is applied, namely, with a quill cut in the
shape of a pen, but rounded off, instead of having a point. It requires to be
dropped in very speedily, as it rapidly volatilizes. I have always, when it has
been in my power, applied the essence once a day, but it has occasionally hap-
pened that the patients have neglected attendance for two, three, or more days,
and have then returned much worse than they were previously. I may also add,
that occasionally, even when they were regular in their attendance, a relapse
would take place; and this occurred, in a most remarkable manner, on Saturday
the 1st of June. On the preceding day several cases were reported as rapidly
improving, or nearly convalescent, and yet, on the 1st, with perhaps one excep-
tion, they returned with a fresh attack. Had only one or two cases relapsed, I
might have attributed it to negligence and inattention to my directions on the
part of the patient, or to exposure to cold; but, as by far the majority of the
cases were similarly affected, I could not avoid considering it as something re-
markable, and dependent on some change in the atmosphere.

In summing up, I may say, I have employed the essence of lemons in various
acute and chronic inflammations, in opacity of the cornea, and the purulent and
mucous-purulent ophthalmia, but not in pannus, pterygium, or albugo; cases of the
latter description not having come under my care latterly, I should consider,
from the nature of the complaints, that it may prove advantageous in albigo, but in regard to the other two diseases, I should be very dubious of its powers.

On the whole, I believe it to be preferable to the vinum opii in all cases where a stimulant is indicated, and equal, in many, to the unguentem argent. nitratis, but falling short of it in others; while the great facility with which it may be obtained and applied, renders it a great acquisition to the country surgeon, who would find it inconvenient to spend a couple of hours over the mortar in pulverizing the nitrate of silver, with the prospect that, when he has made his ointment, he may be unable to use it, from the circumstance that he has left a few granules of the nitrate not sufficiently fine, and which no after-treatment will be able properly to reduce. I have tried it in about five and twenty cases; and shall subjoin the detail of a few, with which I shall conclude.

CASE I. Catarrhal Ophthalmia, treated by the Oleum Limonum.

Sarah Lawrence, æst. twenty-three, admitted the 17th May, 1833. Catarrhal inflammation of the left eye, of a month's duration. The disease was not noticed for the first week, but was afterwards treated by a surgeon; leeches were applied to the temple, a blister behind the ear, lotions, and medicines internally; she says the eye improved a little under the treatment pursued. She complains of pain in the eye and parts adjacent, so severe as nearly to prevent her sleeping at night; considerable lachrymation, tears scalding; vision misty; the eyelids used to adhere in the morning, but not for the last two or three days. Her general health is somewhat affected by the disease, appetite failing, tongue rather furred, bowels open. The conjunctiva of the ball and eyelids injected and inflamed, the affection of the lids being the more intense; a pustule forming on the lower margin of the cornea. The vessels of the conjunctiva of the ball are more of a pink color, but do not form the zone around the cornea. Neither the cornea nor the iris are affected.—App. Ol. Ess. Limon. gutt. ad ocul.: R. Magnes. Sulphatis ʒ i.; Infus. Sennæ comp. tb. ss. solve. Capiat coch. larga ij. omni mane primo.

20th. The pain and inflammation are diminished, and vision is improving; the pustule is small; bowels opened by medicine.—Rep. Ol. Limon. et Mist. purgans.


22d. The pain has nearly gone; vision considerably improved.—Rep. Ol. Limon. et Mist. purgans.

23d. Vision is as perfect as ever. Slight Inflammation of the eyelids still exists.

27th. Is going into the country. To have the vinum opii dropped in occasionally.

CASE II. Catarrhal Inflammation in a Strumous Constitution, treated by the Oleum Limonum and Alteratives.

William Minnift, æst. three, was admitted May the 17th, 1833; a child of strumous constitution, and apparently in ill health. The conjunctiva of the eyelids and ball of the left eye are very much inflamed, the cornea slightly participating, and having a small speck near the centre; there is considerable lachrymation, tears scalding, attended with pain and indifference of light; he cannot open the eye. The bowels are not regular, and he is rather feverish.—App. Ol. Limon. R. Hyd. cum Creta, gr. ij.; Pulv. Rhei, gr. ij. M. fiat pulv. sumat i. nocte maneque.

20th. His vision is improved, and he can bear the light better; the pain and inflammation are diminished; bowels open.—Rep. Ol. Limon. et Pulv.

22d. Improving.—Rep.

27th. Has not attended since the 22d. The inflammation is greater, and all the symptoms are materially increased in severity.—Rep. Ol. Limon. et Pulveres. nocte maneque sumend.

31st. Rather better.—Cont.


5th. Dismissed, cured.

41* v.1
Quarterly Summary of Intelligence.

CASE III. Pustular Inflammation, treated by the Ol. Limon.

Frederick Plumber, mat. six, admitted 17th May, 1833; a child of a strumous habit of body. Has pustular inflammation of the right eye, of five day's duration. There is a pustule on the outer, and another on the inner margin of the cornea, attended with inflammation of the conjunctiva of the ball and lids. There is not much pain at present. Has merely applied a bread and water poultice, and taken aperient medicine.—App. Ess. Limon. Pulv. Hyd. cum Cretà et Rhei nocte maneque sumend.

20th. Is nearly well; the pustules are scarcely visible.—Rep.

22d. Dismissed.

CASE IV. Pustular Inflammation, treated by the Ol. Limon.

Mary Mirvin, mat. six, admitted May 24th, 1833, with pustular inflammation affecting the lower margin of the cornea of the left eye, attended with vascularity of the conjunctiva covering that part; considerable lachrymation and pain. The disease has existed a month; child otherwise healthy.—App. Ol. Limon. Pulv. Hyd. cum Cretà, cum Rhei, n. m. sumend.

25th. There is less pain, and vision is improved; the pustule is smaller, and the vascularity is diminished.—Ol. Limon. et pulveres. 27th. Improving. Bowels not open.—Rep. Oleum Limon. R. Magn. Sulph. f. flaut pulveres tres, sumat i. p. r. n.


7th. Dismissed.

CASE V. Opacity of the Cornea, treated by the Ol. Limon.

Fanny Folkes, mat. eleven, was admitted an in-patient in the Westminster Hospital, with opacities on each cornea. Her eyes had been bad for the period of two years, the disease being the result of inflammation. Her vision is very imperfect; she cannot distinguish letters. The opacities are nearly central, attended with a general muddiness of the cornea. Has been under treatment for some time, but without deriving any advantage. There is not any inflammation of the eye, or its appendages, at present.

June 7th, (ten days after admission.) The essential oil of lemons has been applied daily, with the effect of producing considerable smarting pain, lasting about a quarter of an hour. The general muddiness of the cornea is much diminished; the nebula are not so evident as when she was admitted, and her vision is so much improved that she can distinguish the letters, and spell them, on her admission-ticket. Her bowels have been regulated by medicine occasionally.—Let her continue.

CASE VI. Muco-purulent Ophthalmia, followed by Erysipelas of the Face, extending to the Eyelids, treated with the Ol. Limon. and the Tartar Emetic.

Timothy Fitzpatrick, mat. fifty, a man of a sanguineous temperament, short and stout, has been in attendance a considerable period.

About two years ago, he lost the sight of the left eye from inflammation, in consequence of which the cornea and other parts became disorganized, and the cavity of the anterior chamber lost, the cornes lucida being completely flattened. He has been an out-patient occasionally several times since, for attacks of inflammation affecting the conjunctiva covering the ball and lining the eyelids.

During the night of the 14-15th of May, 1833, he suffered from a fresh accession of pain in the left eye, attended with a considerable discharge, the pain chiefly at the outer canthus. He does not know any cause for this attack; says he has not caught cold lately, nor has any thing got into the eye that he is aware of. On examining the organ (May 15th,) there appears considerable inflammation of the conjunctiva of the ball and lids, that membrane being exceedingly vascular and chemosed; a fluid of a muco-purulent character is constantly and rapidly secreted; the pain continuing at the outer canthus. (Several symptoms are here either wanting or masked, in consequence of the loss of vision; such as the aver-
Ophthalmology.

15th. The application of the drop did not cause much pain, nor did it last any length of time. The eye felt easier for some time after, the original pain in the canthus beginning to return about nine in the evening, when he went to bed. He could not sleep, from the pain. The discharge appears to be rather increased, and there is a bluish erysipelas-like inflammation on the left cheek extending to the eyelids, which are tumesced and inflamed externally and internally; the cheek and eyelids are puffy; skin hot; no pain in the head, but it continues at the outer canthus, rather however as soreness than actual pain; the tongue is covered with a dirty-brown fur; a slight acceleration of pulse. The salts operated well. Rep. Ol. Limon. App. Ung. Cetacei palpebris nocte. Aqua tepida sepe indies injicienda. R. Antimonii Tartarizato, grana duo; Magnesii Sulphatis, unciam; Aquae, uncias octo. Solve, fiat mistura. Capiat cochleari ampla duo omni hora.

17th. The drop gave him considerable pain. He passed a better night. There is not so much tumefaction of the lids, nor general inflammation; he thinks that there is more discharge, but that it is thicker. The mixture opened the bowels freely, and excited slight nausea: tongue furred.—Rep. Ol. Limon. Latio Aluminis sepe utend. Rep. mixture, sumatur dosis omni bihora.

19th. The tumefaction has nearly entirely subsided; he can open the eye very easily; sleeps well; the inflammation of the eye abating, and discharge lessening, the erysipelatous blush has almost gone, as likewise the discoloration of the eyelids; tongue continues furred; bowels open.—Persistet in usu omnium medicorum.

22d. Improving.—Rep.
From this date to the 3d of June he gradually improved; there remained then very little discharge, and that depending on a granular state of the eyelids, which has latterly come on. No pain or uneasiness.—Ordered the Sulphas Cupri, to remove the granulated appearance of the lids.

Case VII. Purulent Ophthalmia, dependent on Leucorrhœa in the Mother; Use of Ol. Limonicum.

David Davis, nat. six weeks, was admitted May 22d, 1833, with purulent ophthalmia of both eyes, of five weeks' duration. The mother has had leucorrhœa for some time previous to parturition, and it still continues on her. The child's eyes appeared weak soon after birth, but she could not ascertain the exact period when they became inflamed. Within a week however after birth, purulent matter, of a proper consistence and yellowish color, was secreted abundantly from each eye, the lids at the same time being very much tumesced. The mother has never done any thing for them save cleansing them now and then with warm water. There is at present considerable discharge of a tenacious, yellowish matter attended with inflammation of the eyelids, which are not so tumesced as they were; the inflammation extends, but in a milder degree, to the ball of the eye; on the centre of the cornea there is a speck already formed. The child can open the eyes, but not easily; its health has suffered very much; the bowels are open, but the stools are of a dark color, and the little patient is very much emaciated.—Applicetur Oleum Limonum ocul. sing. Pulv. alter. i. nocte manuque sumendus. To continue the injection of warm water between the eyelids, and that frequently.

24th. The discharge is very slight; can open the eyelids easily; the eyeballs appear to be nearly clear from inflammation, which is also lessened on the lids. The bowels are open; stools of a greenish color. It appears that by mistake, the wrong powders were given, and the child had a large dose of the tartarized antimony, instead of the alterative powder which had been directed.—Rep. Ol. Limon. Pulv. alterat. ss. n. et m. sumend. *

* When this order was given, the mistake already recorded was not ascertained to have happened.
Quarterly Summary of Intelligence.

25th. Is still much affected by the powders, the same kind having been given as at last report. There is rather more discharge from the left, but very little from the right.—Rep. Ol. Limon. Not to have any powders.


28th. Discharge lessened; is altogether improved.—Cont.


June 1st. There appears to be an increase of discharge, and the child is not so well.—Rep.


7th. Very little purulent matter secreted—Cont.


[SURGERY.

36. Case of carotid aneurism successfully treated by placing a ligature on the distal side of the tumor. By Mr. Montgomery.—Eight days ago I was present at a very interesting operation, that of taking up the carotid artery above an aneurism. It was performed by Mr. Montgomery, R. N. surgeon to the Civil Hospital, at Port Louis. The subject was a free black, tall, rather of a spare habit of body, but emaciated and debilitated. He had been sometime afflicted with a left carotid aneurism; had considerable cough, with irritation of the trachea, and frothy mucous expectoration, palpitation of the heart, great anxiety, and a fixed pain in the left temple. The tumor pulsed strongly, was very large, nearly of a triangular form, the base occupying the space of two-thirds of the sternal portion of the clavicle, and ascending nearly four inches from the clavicle to the angle of the jaw, so that the volume of the tumor limited exceedingly the space for operating. Therefore an incision of an inch and a quarter in length was made through the integuments and platysma-myoideus muscle, by which the inner edge of the sterno-cleido-mastoideus was brought into view (greatly thrown out of its natural position,) this being pushed aside, partly with a silver knife, and the handle of the scalpel and the fingers. The dissection was then conducted with much caution, there having been some transverse branches of vessels and nerves greatly in the way, which, together with the restless disposition of the patient (it being impossible to steady his head for two minutes,) impeded the progress. This process of the dissection exposed the sheath of the vessels, the descensens noni being in front, which was easily pushed aside, also a vein of the size of a crowquill, running transversely over the carotid, at the upper edge of the omo-hyoideus muscle, which was distinctly perceptible, and the avoiding of this vein limited the space for the subsequent part of the operation; therefore, about half an inch of the sheath was cautiously cut into, and the artery on being laid bare was separated from its adhesions. I then put my finger on the vessel, as did other persons who were present, and could distinguish no pulsation whatever.

Immediately after this, Mr. Montgomery passed a clumsy needle (made here for the occasion,) armed with a double ligature, underneath the artery, and took it up with great skill and facility; one ligature was withdrawn so soon as the other was made secure. The lips of the wound were now brought together with a single suture and a couple of slips of adhesive plaster. The patient having been much exhausted, a little wine-and-water was given him and he was put to bed. On the fourth day the first dressing was removed, the patient appearing to be doing well, the pain in his temple having subsided immediately after the operation. His cough, palpitation, and other distressing symptoms, were gradually giving way, and the volume of the tumor was very perceptibly reduced, and the pulsation very indistinct. The external wound presented a very favorable appearance.
Surgery.

It is but fair to remark, that this operation was undertaken under very unfavorable circumstances. The patient had been told by some inconsiderate friends, that if he submitted to an operation he must die; however, he was at first satisfied (and there was no doubt in any of our minds) that he had no alternative, as the tumor would soon burst, and he must bleed to death, if he were not previously suffocated by the pressure from its rapidly increasing bulk. The surgical paraphernalia was unusually clumsy, and the patient in many points of view a bad subject for operation. Yet, under all these circumstances, it was impossible to perform any operation in a more masterly or scientific manner, and in no one process did Mr. Montgomery lose either his presence of mind or steadiness of hand; scarcely one drop of blood was lost, except that which came from the minute vessels of the integuments and muscles. The operation was performed in about twenty-five minutes.—*London Lancet, June, 1833.*

37. Clinical Lectures on Surgery. By M. Le Baron Dupuytren.—On Hydatid Tumors developed within muscles and the viscera.—I have sometimes observed hydatid tumors situated on the trochanters of muscles, the growth of which often more or less impeded the functions of those parts. The effects they produce are of singular variety; in general these cysts appear to act like foreign bodies, namely, by driving back or compressing the parts in the midst of which they are situated; thus their symptoms are often confounded with many other affections, especially with those of ordinary encysted tumors, which contain nothing but serosity or albuminous matter of variable aspect.

Cases of Hydatid Tumors in the Biceps and Temporal Muscles.—It is especially the cysts of the acelphaloïd variety (situated in the limbs or other parts of the extremities of the body) that it is difficult to distinguish during life from the simple membraneous cyst—as is shown by the case I am about to describe. A man, est. about 27, was admitted early this year, into the Salle Saint Marte, No. 34. This individual, of moderately good constitution, lymphatic temperament, and a printer by trade, was about three weeks before his admission employed in charging his press.* Having been obliged to make an unusually great effort, he states that he experienced a smarting in the left arm, opposite the belly of the biceps muscle. He applied his hand to the spot, and discovered a tumor there; and on his admission some days afterwards, there was a tumor at the anterior and middle part of the biceps, on the tract of the branchial muscle. It was as large as a small-sized hen's egg, free from heat, the color of the skin unchanged. It was also immovable, nevertheless the flexion of the fore-arm on the arm seemed to bring it down a little. According to the patient's story, the swelling was but eight or ten days old, but decidedly it appeared to be of much greater duration.

Several questions suggested themselves as to the cause of this tumor. Was it determined by extravasation? The skin did not offer the violet color characteristic of eochymosis. Was the artery injured? The tumor did not present the movements of expansion and collapse, synchronous with the beatings of the heart, and which constitute the essential signs of aneurism. The existence of the affection was evidently, then; anterior to the late accident of the patient. Could it, consequently, be regarded as of a scirrhous nature? The absence of laceration, and the existence of an obscure fluctuation, overturned this supposition. Examining the swelling with increased attention, I was led to suspect it to be formed by an hydatid cyst, and this opinion seemed to me the more probable from an analogous fact that occurred to my recollection. A young girl of twenty came once to my consultation, with a tumor in the temple, attributed to a violent blow from a whip she had received from a carter. I made an exploring puncture, which, by the way, should always be practised where the nature of the disease is uncertain. A jet of serous fluid immediately rushed out. Increasing the opening, I pressed on both its sides, a large white sac escaped; it

* Query, "pulling a sheet."
was an hydatid developed in the body of the temporal muscle. But before employing these means in the case of the printer, resolvents and astringents were applied for a fortnight without producing any change. On the 15th January the tumor presented most decided fluctuation, and I then took the step of the exploring puncture. Had we, contrary to all expectation, cut upon an abscess, compression of the hand would quickly have arrested the hemorrhage, and the ligatures would have been at once applied. If the swelling depended on an abscess, the purulent collection would have found an issue, and the end of incision been thus accomplished. A biatoury was accordingly introduced; a great quantity of serous fluid, which was scarcely tinged with blood, made its escape from the edges of the wound. In pressing on each side of the opening, a little white substance was ejected, which was recognized to be a muscular acephalo-cyst, of oval shape, with very thin walls, and quite transparent. Two days after the operation, the patient was in the best possible state; he experienced no pain; the muscle had resumed its position; nevertheless a slight inflammation occurred, which terminated by a scanty suppuration. In eight days he was quite well.

Characters of Hydatid Cyst.—The acephalo-cysts have long been confounded with other morbid vesicles; but, on the more careful cultivation of pathological anatomy, it was perceived that a great difference existed between the membranous vesicular tumor, firm, and strongly connected with the tissue of the organs, and those softer vesicles, which devoid of all adhesion, roll about in accidental cavities ordinarily lined by these substances. The former are membranous cysts, of a texture analogous, sometimes with the serous, sometimes with the fibrous membranes. The latter, on the contrary, are true vesicular worms. The acephalo-cyst is indeed one of the simplest of all animals; it exhibits the form of a membranous bladder, of a semi-concrete albuminous consistency, in which the eye, even when aided by the microscope, can detect no particular organ. The structure of the cysts in which these worms are lodged, is rather complicated. Their presence is invariably, and it is an error to assert that they may be deficient. In these cysts we always find a fibrous tissue, of the nature of that of the articular ligaments and tendons, composed of fibres crossing each other in various ways, and often very irregularly. The interior of the cysts is sometimes white, and somewhat smooth, but it never presents a surface so even as that of the serous cysts; but from these it is further well distinguished by its fibro-aponeurotic aspect. A great number of the acephalo-cysts are usually present in the same sac. They float in a liquid, which sometimes, as that contained in their cavities, is absolutely pure water, but which often also is yellowish, troubled, puriform, and more or less thick in consistence. But whatever be the nature of the liquid within the cyst, that of the acephalo-cyst is almost invariably transparent, and like water. Sometimes, but rarely, rather larger cysts are found, containing only a solitary acephalo-cyst. These are probably but of recent formation.

There is no authentic case of the development of acephalo-cysts in the natural cavities of the body. They always originate in a cyst inserted in the very tissue of some organ. It is true that they have been seen to escape from different natural cavities, but there are strong reasons to believe that this only takes place after the cysts which contain the worms have broken in these situations. Such was incontrovertibly the case in the individual of whom we spoke in a lecture delivered last session.

Paralysis and Atrophy of the tongue, from an Hydatid in the anterior Condyloid Foramen, pressing on the Lingual Nerve.—When the patient now mentioned left the Hôtel Dieu, he had a paralysis of the left side of the tongue, which had occasioned the atrophy of this part, but he preserved the sense of taste, which led us to suppose that the lesion influenced the great hypoglossal nerve. In about two years after, we heard that he had died at the Hôpital Cochin. M. Gendrin, who had the kindness to communicate some details about him, states that he retained his intellectual faculties to the last moment. The paralysis and atrophy of the left side of the tongue were still more marked than when he left the Hôtel Dieu. The sense of taste had slightly diminished at the side affected. His gen-
ervative organs were much weakened. Some days before death, symptoms of compression set in, under which he died. On careful dissection, a great quantity of serum was found in the ventricles of the brain; but what is still more remarkable is, that a considerable number of hydatides were discovered at the base of the cerebellum; one of them had introduced itself into the anterior condyloid foramen, and compressed the hypoglossal nerve in the most evident manner. Thus was our diagnosis substantiated. This fact is the more curious, as it supports the opinion of the physiologists who believe this nerve to be more specially destined to motion and nutrition. M. Gendrin has pretended that these hydatides were not encysted, but it is probable that the envelopes were torn, and this is still farther proved by the fact of the liver containing a considerable number of these acephalo-cysts, which were comprised in a single cyst.

Situations of Acephalo-Cysts.—Acephalo-cysts have been found in almost every part of the human frame. Cysts full of these animals have been met with in the thyroid gland, in the folds of the peritoneum, on the lungs, in the different parts of the cellular tissue external to the peritoneum, between the coats of the intestines, between the folds of the epiploon, in the tissue of the liver, in the kidneys, the ovaries, the womb (where they form the majority of the vesicular moles,) in the anterior lip of the os sacrum, in the substance of the parietes of the abdomen, in the inter muscular cellular tissue of the neck, back, thigh, shoulder, and many other situations.

Case of Cysticercus Ladaerca in the Great Peroneus.—The acephalo-cyst is not the only worm developed in the body of man. Some years since, I met the cysticercus ladaerca in the great peroneus muscle. This worm is always shut up in a cyst bladder, and lives there all alone. The cavity of this cyst, lined by a membranaceous layer, contains besides the cysticercus, which is free, a serosity of the same nature as that contained in the caudal vesicle of this worm. It principally inhabits the muscular, or, rather, the cellular tissue, which connects the different fibres that compose the muscle. The growth of this vesicle in the pig is the cause of a very serious disease, commonly known by the name of "la
drerie."

The case just alluded to, is one I saw about thirty years since; I found the worm in the great peroneus muscle of a man. This worm, which was at once readily recognised as a cysticercus finnus, presented some remarkable peculiarities relative to its body and containing cyst. The ovoid cyst, about eight lines long, adhered strongly by its external face to the muscular fibres, to the fat and the surrounding cellular tissue. It was lined almost completely by a yellowish matter, scanty in quantity, rather firm, friable in some points, elsewhere more firm, whitish, or slightly red, and rather like the fibrin of blood. The proper membrane of the cyst was evidently fibrous, and exhibited a texture and firmness analogous with those of lateral articular ligaments. However, the fibres were more transparent, more intimately bound together, and in this respect resembled the milky tint and homogeneous structure of cartilage, from which, however, they differed in their flexibility. This proper membrane of the cyst was of unequal thickness—in some parts more than half a line. Its fibres were, in part of its extent, dyed of a red blood-like color. The vesicular worm contained in this cyst, had a substance shut up in the caudal bladder, of about five lines in length, formed of a thin, uniform membrane, destitute of fibres, and firmer than indurated white of egg. The greater part of it was of a reddish tint, rendering it rather opaque, and apparently proceeded from the cyst, having been stained with blood. I sought on the exterior of this vesicle for the little opening by which the body issues, and is externally developed; but I could not distinguish it; probably, because the worm had been kept some hours in spirits of wine; I then opened the caudal vesicle; the substance it contained was of the form of a slightly elongated tubercle, of a yellowish-white color, opaque, and of the size of a cherrystone. It adhered to the parietes of the vesicle by means of a white, opaque, moist substance, which, when pressed, allowed some little drops of a milk-white fluid.

* The translator can furnish no English for this term.
Quarterly Summary of Intelligence.

to exude. "The matter itself was amorphous, externally tubercular, in size nearly equal to that of the substance to which it adhered by continuity of surface. It appeared to have escaped from this substance by a kind of evagination analogous with that sometimes observed in some long worms, such as the crinoid and lumbrical ascarides. The body, pressed out between two plates of grass, was an inch long, a line and a half in diameter at its base, and about half a line at the head. With the microscope, the crown of hooks and the four suckers were very easily distinguished.

Hydatids are often met with in dissection, but it is rare to find them in the living body, and even when their existence is ascertained, it is easily understood how difficult must be the treatment of a tumor devoid of heat or redness, and which the patient believes to be owing to some very recent cause. We must in this case, as I have so often insisted on in others, assure ourselves that the tumor presents no movement of expansion or retraction, and then we must make an exploring puncture, which is the best mode of avoiding all mistakes.

Muscular hydatids should not be confounded with those developed under the annular ligaments of the corpus and tarsus—their seat, their nature, and their symptoms, establish sufficiently marked distinctions.

Case of Hydatid Cyst in the Liver, successfully treated.—As to visceral hydatids, their characters are generally so obscure, that they are not recognized during life. There are, however, some cases wherein the diagnosis may be accomplished. M. Recamier has even succeeded in curing an hydatid cyst of the liver, by an exploring puncture—the application of caustic potash, and the injection of liquids.

The case in question is so curious, that an extract from it must possess considerable interest. An individual, aged 20, a house-painter, was working in a shop where the floor fell in; he dropped into a cellar ten or twelve feet deep, and immediately became insensible. Next day, a yellowish tint began to develop itself on the face, and it soon overspread the whole body. Three days after, severe pain was felt in the right hypochondriac region, the decubitus on either side became impossible. On the 5th of May, seventh day of the accident, the patient came to the Hotel Dieu. The right hypochondriac region was the seat of an irregular tumor, extending from the ensiform cartilage within about three finger's breadth below the umbilicus. Observe fluctuation was perceived, and several hardish, projecting, and unequal, substances, apparently immovable, were felt through the parietes of the abdomen.

In order to learn the nature of the tumor, it was punctured with a very fine trocar, a cupping-glass was applied over the canula, and some drops of a very limpid liquid, in every respect like that of hydatides, escaped. The subsequent days a large piece of caustic potash was placed on the most projecting point of the tumor, close to the false ribs. By means of a new application of the caustic, the tumor contained in the abdomen opened spontaneously, and without pain, through the lesion in the skin, and waves of a yellowish and limpid fluid, mixed with a great number of hydatides, were expelled with force. The same day an injection of honeyed barley-water was made into the cyst, in order to prevent the entrance of air. This injection was successfully replaced by saline water, a decoction of barley and quinquina, and a solution of chloricuret of lime. The area of the cyst soon began to diminish, and when the patient left the hospital, there only remained a small fistula, giving issue to a little greenish fetid pus. Some particles of alimentary and stercoreal matter had escaped through the wound.

We see in this remarkable case, that M. Recamier observed the precept we have so long inculcated, of having recourse to an exploring puncture in tumors of doubtful nature.

Symptoms of Visceral Hydatides.—We have said that visceral hydatides could not, in the great majority of cases, be recognised in the living subject. The following are some symptoms which have been observed in the individuals who present this affection:—Their presence in the cellular tissue, external to the peritoneum, or in that connecting the tunics of the stomach or intestines, occa-
sions some derangement in the digestive functions, sometimes even exerting such a strong degree of compression on the intestinal canal as to produce a true iliac passion. The cyst in the tissue of the liver gives rise to very different morbid phenomena, intense in proportion to the volume of the hydatids. Generally there is a feeling of weight, rarely of acute pain, sometimes a tumor more or less manifest in the right hypochondrium. The respiration is, in some cases, much embarrassed, and there is a degree of anxiety and uneasiness which perpetually make the patient change his position. Sometimes there is jaundice, vomiting, nasal hemorrhage, diarrhoea, and obstinate constipation. There is, in some cases, a trembling of the parts, like the movements of a mass of jelly. Acephalo-cysts of the kidneys are only declared by the pain they occasion. In the ovaries their effects are quite the same as in the membranous cyst or ovarian dropsey. In the womb they occasion very different phenomena, according to the manner in which they are lodged in that viscous. When situated deeply in the substance of its walls, a feeling of weight is the only immediate symptom; but when they are developed between the lining membrane and the substance of the uterus, they eventually dilate the organ, its neck thins and widens, and all the ordinary phenomena of pregnancy take place; the acephalo-cysts then constitute the affection termed the "vesicular mole." Hydatids of the lungs occasion dyspnoea in different degrees of the cause of which it is generally impossible to suspect.

Case of Hydatid Cyst in the Liver, with intense Pulmonary Hydatid Tumors.—The following case, however, is one of those in which the visceral hydatid has been most accurately recognized in the living person. A young man, aged 18, had a peripneumonv, which was perfectly cured. At 24 he had a violent and obstinate cold, accompanied by very acute pain in, and inability to lie on, the left side. These pains ceased with the cold, but re-appeared on the slightest occasion. In July, 1800, the pain of the side and cough reappeared with such violence, that the patient dreaded every movement. He soon complained of a little tumor, the seat of which he stated to be in the right hypochondrium. This tumor soon acquired a certain volume, and the cough was now accompanied by momentary suffocations. In May, 1803, the patient was in the following condition:—He was very thin. When laid down to have the tumor examined, it appeared of a volume so considerable, that the hand could scarcely cover one-half of it. It was so hard, that it did not yield to the finger. Its surface seemed very smooth. It was moveable, and could be readily displaced, whether to the right or left. The beating of the heart was so violent, that in the epigastric region it was perceptible to the eye. He occasionally expectorated a little blood, and trembled almost continually. The dyspnoea and feeling of strangulation had increased in severity. These symptoms were worse in cold, and improved in mild weather. His pulse was completely natural. By January, 1804, all the symptoms had increased. In the beginning of June, he experienced two paroxysms of extreme violence, with an interval of one day, and was almost suffocated. Perceiving his dangerous state, he came to Paris to obtain medical advice. He performed the journey of ten leagues in a carriage, went to his apartments, feeling himself comfortable, and supped moderately. In a few hours, however, he was attacked by another paroxysm of strangulation, in which he died. The body was opened by M. Geoffroy and myself.

Autopsy.—We found in the left lobe of the liver a cyst, partly concealed in the substance of this organ, and partly projecting into the abdominal cavity, resembling a bladder, which could be moved and displaced at pleasure. The parietes of the cyst were thin, and nevertheless, fibrous. They seemed retracted on themselves. Their cavity contained—1st, a quantity of yellow fluid; 2nd, a great number of little hydatids, generally about the size of a pea, but one or two as large as the yolk of an egg. The part of the hydatid cyst external to the liver, adhered strongly to the smaller curvature of the stomach; still there existed no trace of cicatrix on the external membrane of this organ. The thorax was of considerable dimensions; the heart, pushed downwards, corresponded with the upper part of the epigastrium; both lungs, compressed, flattened, and reduced to a thin fold, were thrust towards the anterior part of
Quarterly Summary of Intelligence.

the chest, behind the costal cartilages. The rest of the pleural cavities was occupied by two very voluminous tumors, each extending from the top of the chest to the diaphragm, adhering intimately to the ribs, and to the entire of the mediastinum; together forcing the heart out of the thoracic cavity. Both tumors, equally tense and fluctuating, had a white, fibrous, thin, but resisting envelop, and each contained an enormous hydatid, exactly filling the cyst, and apparently adhering to it by means of a glutinous substance. On measuring the limpid fluid contained in the hydatids, it was found to amount to five and a half pints in each. These hydatids were about eleven inches long.

Case of pulmonary hydatids, evacuated at the Umbilicus.—A second case of pulmonary hydatids, which we shall describe in a few words, was in one respect more extraordinary than the preceding. A woman came to the Hotel Dieu in 1811, on account of an inflammatory swelling at the umbilicus. I was at first unwilling to touch it, but the fluctuation having become manifest, and rupture of the skin being imminent, an incision was made, which gave issue to a great quantity of pus, and hydatid cysts. The woman died, and on the examination of her body a communication was found between the opening in the umbilicus and a cavity contained within the lung, by means of a canal formed through the diaphragm, between the liver and the parietes of the abdomen. The lung contained a great quantity of hydatids, and was evidently the primary seat of the disease.

Symptoms continued.—Treatment.—From the preceding facts it is seen, that the symptoms of the presence of these acephalo-cysts are absolutely alike with those of many other diseases. The absence of other characters of better known maladies is often the only sign which permits us to suspect the presence of these animals. We can sometimes be convinced of it, however, when the cysts which contain them break, either into some of the cavities lined by mucous membranes, or on the external surface of the body, as when they escape through the parietes of the abdomen. The rupture of the cysts into mucous cavities has generally favorable results, and art has even imitated nature in this respect. Nevertheless, professor Lassus, in his researches on the encysted dropsy of the liver, has related several cases in which incision of the cysts has not saved the patients, but has even accelerated death. According to my own experience, incision is usually favorable in those hydatids which attack the external parts of the body. It seems even that the disease may disappear without either a natural or an artificial opening. In these cases it is probable that the acephalo-cysts perish spontaneously, and that the thin part of their fluid is absorbed. The cyst then contracts on itself, like an aneurism after Hunter's operation, and at the end of a certain time there remains nothing more than a small mass of a substance of a yellowish color, in which are seen layers of fragments of the former acephalo-cysts.

Case of a cyst containing a Human Fetus, in the Mesentery of a Boy.—The visceral hydatids developed in the cavity of the pelvis may be confounded with a crowd of tumors too numerous to name, and which, moreover, have been repeatedly studied. But there is one especially deserving attention from its extreme curiosity, and which has been described in a periodical, now difficult to be procured, namely, the "Recueil des Memoires de la Faculte de Medicine de Paris," and entitled case of a "Cyst Containing a Human Fetus Developed in the Mesentery of a Boy of Fourteen."

"Amdeee Bisieu, son of M. Bisieu, of Verneuil, department de l'Eure, was born in 1790, of a young, well-formed, healthy woman, who had previously borne another child, well-formed and of good constitution. On the night during which his mother supposes he was conceived, one of the alarms then so frequent in France threw the town into violent agitation, and called the inhabitants tumultuously to arms. During her pregnancy, Madame Bisieu experienced some mental afflictions, as well as frequent indispositions; nevertheless her labor was propitious. It was supposed that during labor an unusual quantity of water escaped through the vagina. Immediately after birth the infant was confined to a nurse, who finding him weakly and unhealthy,
almost despaired of bringing him up. Returned to his father's house, he complained, from his first lisp, of pain in the left side of the chest and belly. The volume of these parts was so considerable that it was feared he labored under organic disease; but the size was, nevertheless, so variable, that nothing was done beyond accommodating his clothes to these variations. However, as he grew up these fears subsided, but the boy's body continued thin; he continually complained of slight pains in the side; his appetite was fantastic and irregular, and he frequently suffered from indigestion. On dressing him one day it was perceived that two of his left ribs were more elevated and prominent than the others; but this was attributed to the effects of a habit he had contracted of sucking the right thumb, and inclining his body to that side. Still less attention was excited by the circumstance, as at this time the lad was distinguished for a degree of gaiety, vivacity, and intelligence, beyond his age. He was sent to a boarding-school at Rouen, where having spent eighteen months, he was suddenly attacked, on the 13th Nivose, year twelve, with acute pain in the side and left hypochondrium, with continued fever, with exacerbations, and a feeling of oppression. Great swelling of the pelvic region also occurred. He was bled and purged. The fever continued and the swelling made progress. On the 7th day of his illness, M. Blanche, the surgeon, perceived distinctly in the abdomen, a hard and very painful tumor extending along the false ribs to the crest of the ilium, rounded from side to side, and of the size of a large melon. Calming treatment was employed, but the pain did not diminish until an abundant purging of fetid putrid matter had taken place. The marasmus, however, proceeded, and after some months useless treatment he was sent home. On his arrival, MM. Guerin and Bertin Desmarzselles recognised the tumor. A continual cough soon occurred, accompanied by purulent and fetid expectoration, and a purging of matter also fetid, in the midst of which, six weeks before his death, was found a parcel of hairs rolled up on themselves. He died on the 23d Prairial, an. 12, six months after the attack at Rouen.

**Autopsy.**—"The opening of the body took place next day, in the presence of MM. Guerin and Bertin Desmarzselles. These physicians discovered in the left hypochondrium, below the spleen, a large, thick, membranous sac, adhering to all the surrounding parts, and especially to one of the large intestines, which they presumed to be the colon; and in this cyst, amidst purulent, thick, and yellow matter, two masses were of nearly equal volume, situated transversely before the vertebral column, one applied to the other, but, nevertheless, quite distinct. Of these two masses, one placed inferiorly, was composed of a large handful of tangled, felted hair; around this were two little parcels of hair, like what passed by stool six weeks before death. The other mass, situated higher, consisted of an oblong, fleshy, and bony substance, covered with skin. At one of its extremities was seen an imperfect head, with hair, teeth, a deformed nose, a kind of orbit at one side, and an ear at the other. At the opposite extremity was a limb-like appendage, ending in some tongue-shaped points armed with nails. Lastly, from the centre of the mass proceeded a thick, short ligament, inserted into the parietes of the cyst.

"Deeming the case deserving of more minute researches, MM. Guerin and Desmarzselles lifted the fleshy mass out of the pelvis, and took it away, together with the stomach, spleen, and a part of the large intestine. They ascertained, then, that there existed no trace of sexual conformation, external or internal, and that the sex of Amadée Bisiaux was indisputably masculine. Lastly, they found on dissecting the rest of the body, that the liver was very voluminous, and the lungs whitish and infiltrated with pus. Twenty-two days after this, the body was exhumed, in order to verify the facts now related. MM. Delzeuze and Brouard, who were charged with the investigation, found no trace of any sexual organ but those belonging to the male. The bladder was cautiously separated, the vesicule seminales discovered; the rectum examined internally and externally, and nothing extraordinary found. Lastly, the ex-
ternal parts of generation were carefully inspected, and the testicles, vasa deferentia, and penis, were found to be perfect in formation, but small in size."

Remarks on the Case.—A fact so extraordinary excited universal attention, and M. Blanche forwarded the preparation to the Faculty of Medicine of Paris, and I (said M. Dupuytren) was commissioned to report on this great anomaly in the laws of nature.

The first fact I ascertained relative to the position of the fetus, was, that it lay in a cyst of the transverse mesocolon, which had only communicated very recently with the intestine; through the destruction of a partition by which they were separated. In continuing this examination, I ascertained that the organized mass contained in the transverse mesocolon had many points of resemblance to a fetus, but that it offered also numerous peculiar dispositions, some of which depended essentially on vices of conformation, while others appeared to be dependent on changes of form successively effected by time and the sojourn of the mass in the mezocolic cyst. The dissection of the mass was, however, the surest mode of determining the nature of this production. I did so with great care, and I discovered the trace of some organs of the senses, a brain, spinal chord, very voluminous nerves, muscles degenerated into a sort of fibrous matter, a skeleton, composed of a vertebral column, a head, a pelvis, and the rudiments of almost all the limbs. Lastly, in an umbilical chord, very short, and inserted into the transverse mesocolon, beyond the cavity of the intestine, an artery and vein ramified in each of their extremities in the fetus, and the individual to which it belonged.

The existence of these organs sufficed certainly to establish the individuality of this organized mass, although in other respects it was destitute of organs of digestion, of respiration, of the secretion of urine, and of generation. But the absence of these parts, at most, could only render it one of the monstrous fetuses destined to perish at the moment of birth.

We shall not dwell on suppositions, more or less problematical, advanced respecting the presence of this fetus in the body of the young Bissieu. We shall only remark, that it is by no means rare to see twins born adhering by the back, belly, head, or by several parts at once. A degree of compression more or less strong, exercised by the mother's organs on the soft embryos, either during conception or soon after it, may produce these monstrosities. In other cases, not extremely rare, the twins are so identified, that many organs are deficient in each, and are replaced by common organs, which serve for the existence of both individuals. In the first case, the monstrosity depends on a mechanical cause; in the second it depends on a primary fault in the organization of the germs. One of these explanations being admitted, the sex of the individual who so long acted the mother to the fetus in question, becomes altogether indifferent. The fetus has progressed, but as extra-uterine conceptions do. In fact, to whatever part the fecundated germs are attached, their mode of nutrition is the same. They derive from all, by means of proper vessels, the nutritive fluids they require. They are developed, and increase in size, until the time ordained by nature for their expulsion, and if they cannot then be expelled, they putrefy and turn into adipocere; they dry, and become ossified, or else they vegetate until their presence, by irritating the adjoining parts, determines the formation of abscesses, and procures their discharge. Such is what seems to have happened in the case before us.

To ascertain the degree of importance of this phenomenon, its exact cause should first be known, and then this importance would be determined by the light thrown on the natural process, and occasional irregularities of the process of generation. However, putting these considerations aside, the case does not the less merit our attention, from its rarity and interesting phenomena.—London Lancet, March, 1833.

38. Mr. Crampton on the Pathology of Dislocation of the Shoulder-joint.*—If there is any thing which has afforded us greater pleasure than the establish-

* Dublin Journal, Nos. vii and viii.
Surgery.

ment of a Medical Journal in Dublin, it has been the distinguished manner in which that Journal has been conducted. For general soundness, acuteness, and manliness of criticism, it has not been excelled, and we feel delighted at meeting what we may, perhaps with some vanity, denominate, a worthy fellow-laborer in the field of criticism. The Dublin Journal and this Review stood alone in the exposure of the absurdities and fallacies of Dr. Stevens, and while our contemporary displayed the weakness of his chemical theories and experiments, we ridiculed the general tenor of the work. Both of us were exposed to some little obloquy at the time, but we venture to say, that there are few who now think of Dr. Stevens' saline treatment but as a folly past, if they think of it at all. The Quarterly Review, indeed, has thrown its mantle over him, but, like the mantle of the Senators of Romulus, it has crushed its wearer, and his spirit is gone from us, none know whither.

The Dublin Journal has been as distinguished in its original as in its critical department, and we have shaken hands with Cramp ton, and Stokes, and Graves, and others of the Lords of the Emerald Isle. Late, say we, may be the parting, as the greeting has been pleasant and hearty.

The object of the present article is to introduce to the notice of our readers some observations of Mr. Cramp ton's on Dislocation of the Shoulder-joint. Though not strictly a hospital report, it has so much of the clinical about it, so genuine a smack of the hospital still, that we cannot introduce it in a more appropriate place than this. Mr. Cramp ton will appreciate our feelings when we say, that we never see a bird of his rise from cover, so blithe and so strong on the wing, but we like to bring it down.

Mr. Cramp ton justly observes, that though the treatment of dislocation of the shoulder-joint has engaged much attention, yet a rational method can be founded only on an exact knowledge of the pathology of the injury, which, unfortunately, has been but sparingly illustrated. It is Mr. Cramp ton's wish to add to this knowledge. At the time Mr. Hey wrote, Mr. Cramp ton is not aware of there being more than one case of dissection of a shoulder-joint recently dislocated, on record, that of Mr. Thompson's in the Medical Observations and Inquiries for 1781. Even in this case the description is confused, and the accompanying plate imperfect. The case, too, was not, strictly speaking, a recent one; eighteen days having elapsed between the reception of the injury and the examination of the joint after death. In Professor Bonn's monograph on Luxations of the Shoulder, the most recent case of which a dissection is given, is of two years' standing. This monograph was published in 1782. In Sir Astley Cooper's Treatise on Dislocations, we are presented with the post-mortem examination of two cases of recent dislocation of the humerus, both of which were instances of luxation "into the axilla."

In these cases we are told that, in the first, the capsular ligament was torn on the whole length of the inner side of the glenoid cavity, which (rent) would have admitted of a much larger body than the head of the os humeri through the opening. The tendon of the subscapularis muscle was also extensively torn, but the tubercle on which the supra and infra spinatus, and the teres minor muscles are inserted, was not, (as in Mr. Thompson's case,) torn off. In the second case, in which dislocation had existed (unreduced) for five weeks, the capsular ligament had given way in the axilla between the teres minor and subscapularis muscles, the tendon of the subscapularis was torn through, at its insertion, all the articular muscles, but particularly the supra-spinatus, had been more or less lacerated, as it would seem, in the attempts which had been made at reduction. Sir A. Cooper found that "the resistance to reduction (even after death) was such as he could not by himself overcome; he divided one muscle after another, cutting through the coraco-brachialis, teres, major and minor supra-spinatus muscles, but still the opposition to his efforts remained; he next divided the deltoid muscle, and found that the supra-spinatus muscle was his greatest opponent, until he drew the arm directly upwards, when the head of the bone glided into the glenoid cavity."

To these cases Mr. Cramp ton is enabled to add two others which have fallen
under his observation: one of a recent dislocation downwards, and one of a recent dislocation under the pectoral muscle.

**Case 1.** In 1808, a laboring man was engaged in digging under the foundation of a house, when a wall fell upon him. He was brought into the county of Dublin Infirmary, in a dying state, in consequence of injury of the head. He lived only two hours. On examination of the body 18 hours after death, the right humerus was found to be dislocated into the axilla. Previous to reducing the dislocation Mr. C. made a careful dissection of the joint. The following were the appearances.

On removing the integuments of the axilla, the cellular membrane, which was extensively ecchymosed, formed a kind of cap, closely embracing the head of the os humeri, which when the axilla was cleared, was seen lodged on the inferior costs of the scapula, or rather on its neck; the head of the bone, in escaping from the socket, had pushed the teres minor downwards, and burst through the lower part of the subscapularis muscle, some of the fibres of which closely embraced the neck of the bone, while the bulk of the muscle was pushed upwards and detached from the inner surface of the scapula. The neck of the humerus, therefore, was in some degree embraced by the divided fibres of the subscapularis muscle, while a portion of its head rested on the neck and part of the venter of the scapula without the intervention of any muscular substance. The short head of the biceps and the coraco-brachialis were forced to describe a curve outwards over the neck of the humerus on the external side, while the long head of the triceps crossed the neck of the bone obliquely on the dorsal side; this stranulation of the head of the bone, by the surrounding muscles, was made most apparent when extension was applied to the fore-arm. The biceps and triceps seemed then to close behind the head of the bone, and interpose themselves between it and the glenoid cavity; the tendon of the long head of the biceps remained in its groove, but the sheath in which it runs was partially ripped up.

The capsular ligament was completely torn from the lower part of the neck of the humerus to the extent of more than half its circumference, the torn edge appearing like a crest over the head of the bone. The great nerves and blood vessels of the arm were forced to describe a curve backwards, by the pressure of the head of the bone which was in contact with them. The tendons of the supra-spinatus, infra-spinatus; and teres minor were completely torn from the humerus, carrying with them a scale of bone from the tubercle.

To ascertain the obstacles opposed to reduction, the scapula was fixed, the arm raised, and extension applied to the wrist. So long as the hand was held supine, the head of the bone remained immovable, apparently from the closing of the biceps and the triceps behind it. On turning the hand prone, rotating the limb inwards, and continuing the extension, reduction was easily effected.

The appearances in this case differed from those observed by Sir Astley Cooper, and agreed with those related by Mr. Thompson. In the case of the latter gentleman, the head of the bone was lodged on the inside of the neck of the scapula, between the subscapularis and teres major—the capsular ligament was completely torn from the whole circumference of the humerus—the attachments of the tendons of the supra-spinatus and infra-spinatus were torn off, with the part of the bone they were inserted into—and some fibres of the subscapularis encircled the neck of the bone. In Sir Astley Cooper’s case, on the contrary, the tendon of the subscapularis was torn through, but the supra-spinatus and infra-spinatus remained attached to the tubercle, and reduction could only be effected by relaxing these muscles. Mr. Crampton observes very justly that the comparison of these facts is sufficient to show, that in apparently similar dislocations of the humerus there may be very different degrees of lesion, and consequently different causes of resistance to reduction.

**Case 2.** J. W. su. 50, was precipitated twice consecutively into a burning lime-kiln, from a height of about 15 feet. He was carried to the Meath Hospital. In addition to severe burns and lacerations, there was a dislocation of the humerus under the pectoral muscle, which Mr. M’Namara himself reduced, by merely drawing the arm gently forwards and downwards with one hand, while he
pushed the head of the bone towards the glenoid cavity with the other. The
man died in the course of the day, and 18 hours after death the joint was
dissected.

The dislocation was unattended with the rupture of any muscle, or the sepa-
ration of any tendon from its insertion into the bone: by a slight effort the dis-
location was reproduced, and the pectoral muscles being removed, the polished
head of the bone was now seen lodged on the cervix of the scapula, at the root
of the coracoid process, but extending nearly as far as the notch in the superior
cornu; it had passed out through a rent in the capsular ligament, over the upper
edge of the tendon of the subscapularis, detaching this muscle from its connexion
(which at this point is but slight) with the inner face of the scapula, and pushing
its fibres downwards, so that they formed a curve which partly embraced the
neck of the humerus; the supra and infra-spinatus muscles were on the stretch,
but had suffered no injury. The cellular substance covering their tendons was
deply ecchymosed, so as to mark their course most distinctly. On replacing
the head of the bone, the opening in the capsular ligament, through which it had
escaped from its socket, could be distinctly seen. It was formed by a separa-
tion of the ligament from the interior side of the brim of the glenoid cavity
from the top to the bottom; it was bounded at the top by the tendon of the supra-
spinatus, and at the bottom by the inferior edge of the tendon of the subscapu-
laris, the rent was continued as far as the root of the lesser tubercle of the os
humeri, and was of sufficient extent, but no more, to permit the head of the bone
to pass easily through it; the inferior part of the capsular ligament, however,
(the part corresponding with the axilla,) was perfect.

The great blood-vessels and nerves lay to the sternal side of the head of the
humerus, and were forced a little out of their course. The axis of the head of
the bone, in its dislocated position, was scarcely a quarter of an inch higher than
the axis of the glenoid cavity.

Mr. Crampton appends to these interesting and valuable facts some practical
observations. We will endeavor to give their substance.

I. Resistance to the reduction of a recently dislocated shoulder would seem to
be owing to spasmodic contraction of the muscles, and not "from the neck of
the bone being tightly embraced by the ruptured capsular ligament." Dissections
does not prove the latter, and therefore it is mere supposition. Muscular con-
traction then being the obstacle, we must diminish its power by bleeding, the warm
bath, antimony, long-continued extension. Another excellent means of obviating
muscular opposition is taking the muscles by surprise.

"If before assistants are called in, or any apparatus is applied, the surgeon,
while he appears to be occupied merely in ascertaining the nature of the injury, ap-
plies a gentle extension at the wrist, and slowly raising the arm to nearly a
horizontal position, suddenly pulls it upwards and a little forwards, (that is to-
wards the patient's face,) while at the same time he as suddenly pushes the
trunk backwards by pressing, with the left hand, below the axilla, he will in a
great number of recent cases succeed by this simple process in reducing the dis-
location. His success, however, will in a great measure depend on the unex-
pectedness of the attempt; he should, therefore, endeavor to divert the patient's
attention from his proceedings, and I know of no means so effectual for this pur-
pose, as inducing him to describe circumstantially every thing connected with
the occurrence of the accident; this is a theme on which all patients, who are at
all able to express themselves, are sure to expatiate with the greatest satisfaction,
and once engaged on so engrossing a topic, it will require but a small degree of
tact on the part of the surgeon to seize the favorable moment when he can
apply his force with the greatest advantage."

II. In luxation into the axilla, muscular contraction seems to operate chiefly by
pressing the head of the humerus against the inferior part of the brim of the
glenoid cavity; in Sir Astley Cooper's case this was mainly effected by the supra-
spinatus. The obvious deduction is, to raise the arm to nearly a right angle with
the body previous to extension, and not to use any force in pressing the head of
the humerus upwards, as that must lock it more firmly.
III. The direction of the extension is now generally that of a right angle with the body. In the reduction by the heel in the axilla the direction is nearly parallel with the body, but Mr. C. thinks that more force is necessary with this method. Mr. White, of Manchester, drew the limb directly upwards, but the practice has fallen into disuse—a presumptive proof of its not possessing any superior efficacy. The method has lately been brought forward at the Hotel Dieu as a novelty. We are not surprised at this. M. Dupuytren has no love for English surgery, and candor forms no part of his merits or acquirements.

IV. Extension is now pretty generally applied to the wrist in preference to the arm. It is less painful, if not more effectual.

"V. Great stress is laid by most surgeons on the advantage of fixing the scapula, as it is called; it may be doubted, however, whether the thing be possible, or if possible, advantageous. It is quite plain that a split cloth, or a napkin with a hole through which the arm is passed, can, when the arm is strongly extended, act only on the inferior costa of the scapula, or rather on the wall of the axilla formed by the edges of the latissimus dorsi, teres major, and pectoralis major muscles; the whole effect of this force can be no other than to push the inferior angle of the scapula backwards and upwards, consequently to direct its superior angle, and the glenoid cavity downwards, and, by acting on the pectoralis major and latissimus dorsi, to draw the head of the humerus inwards towards the ribs, that is, to remove it from the glenoid cavity. To obviate this objection, some surgeons recommend pressure to be made by the hand of an assistant on the acromion of the scapula, so as to push it backwards while the humerus is drawn downwards and outwards; but it is plain that unless the force which the surgeon applies to the head of the scapula to keep it back, be at least equal to the extending force which is applied to the arm, the scapula cannot be fixed, it must follow the arm; besides, when the arm is raised, the deltoïd fills up the sub-accromial space and renders it impossible to apply any appreciable force to the acromion. As the neck of the scapula cannot be pushed upwards, it is proposed by Bonn, to disengage the bones by pressing the head of the humerus downwards, at the moment when the extension is at the utmost; the proposal is a most rational one, and has been adopted for several years past in the county of Dublin Infirmary, as I think, with considerable advantage."

VI. When a considerable power of extension is required, Mr. Crampton prefers a ladder to the pulleys. One end of the ladder is fixed—the patient stands between the bars near this end—the wrist of the affected limb is tied by a jack-towel or handkerchief to the sides of the fore end of the ladder at a convenient distance from the body—and thus a powerful lever is obtained, one end of the ladder fixed on the ground being the fulcrum, the other end being free, and its depression, by an assistant producing the extension. Counter-extension, is, of course, effected by a towel under or in the axilla.

VII. It has been much mooted whether dislocation forwards is a primitive dislocation, and it has been supposed that every luxation is primarily into the axilla. The case related by Mr. Crampton seems to prove that it is, or at least in that instance it was a primitive dislocation, and as the inferior part of the capsule was not ruptured, it would of course have been injurious to have first reduced the head into the axilla. In such a case the clear indication is to force the head of the bone backwards towards the glenoid cavity, the axis of which is as nearly as possible in a line with that of the head of the humerus; this can be effectually done by applying a fulcrum immediately below the axilla, and using the dislocated arm as a lever of the first kind; the surgeon should therefore place his left arm extended horizontally, immediately below the walls of the axilla, between the dislocated arm and the chest, and then grasping the wrist in his right hand, he should draw the arm forcibly across the patient's body.

Case. The Hon. Colonel Gore was overturned in his carriage, and suffered a dislocation of the left humerus forwards. Mr. Crampton saw him in less than an hour after the accident. Standing before him, he placed his left arm extended horizontally under his axilla, and grasping the wrist in his right hand, he drew
his arm rapidly across his body, so as to bring the hand in contact with the right hip; the bone snapped into the socket at the first effort.

Several lithographic drawings illustrative of the descriptions are appended to the memoir. It is altogether one of a very interesting character, and well worthy the attention of practical surgeons.—London Medico-Chirurg. Rev. July, 1833.

39. Treatment of Ganglia with Iodine.—A numerous course of experiments has fully confirmed the opinion advanced by M. Ricord respecting the use of iodine employed as an external resolvent. He has obtained from it the most satisfactory results in the treatment of ganglia, which had resisted every other remedial mode, and especially in the treatment of some exceedingly obstinate cases of periostosis. The following detailed cases will illustrate the efficacy of the remedy, and the mode of its employment in ganglia.

CASE I. A young person, £at. 18, had a ganglion for about three weeks on the back of the hand. An attempt to rupture the tumor was only followed by its enlargement and induration, and compression had no better effect. Several pledgets of charpie were then applied, steeped in a liquid composed of three scruples of tincture of iodine, and three ounces of water. The epidermis was soon detached, the skin suffered slight cauterization, and the cure was complete after the eighth application.

CASE II. Two tumors of the same nature in a little girl, £at. 6, were twice treated by blows and compression without benefit, and a speedy cure was brought about by the iodine applications.

CASE III. A girl, £at. 18, admitted in October 1832, had a cyst, the size of a nut, on the back of her hand. The thinness of the parietes of the cyst permitted its easy rupture, and a few applications of iodine, with compression, completed the cure. The same proceeding could not be followed with a much larger ganglion, situated below the knee-joint, in the interval between the heads of the gemelli muscles. Its crushing could not be attempted on account of the slightest resistance offered by the subjacent parts, and the touch, moreover, indicated that its contents were thicker than those of the cyst on the hand. Iodine alone was employed, and applied every second day, on account of the fineness of the girl's skin. A complete cure, without any direct compression, was obtained on the tenth application.

CASE IV. In the same ward, No. 32, another female, Rosalie Cheret, £at. 15, admitted the 29th September, had a cyst, the size of a pigeon's egg, in the same situation as that described in the preceding case. The patient could not distinctly recollect the period of its formation, for it was of several years' existence, and until October 1832, had occasioned no inconvenience. It then began to increase sensibly, caused pain in the joint, and impeded its movements. Iodine was applied every second day, and after the 12th the tumor had disappeared, and the limb had regained its flexibility.

CASE V. In places where the skin was less thick, iodine was much more rapid in its effects. A woman, named Veron, £at. 51, admitted November 1832, had two tumors, each the size of a nut at either side of the root of the nose. They were readily displaced, and were seated immediately on the bone, and contained a thin liquid. After six applications of iodine, the patient was completely cured.

Treatment of Periostosis with Iodine.—Denis Gazier, £at. 70, admitted September, 1832, had been treated in 1825 for a venereal disease, and had taken a large quantity of mercurial preparations. In December, 1831, two swellings commenced, one at each side of the forehead, nearly an inch above the superciliary arches. In April, 1832, the tumor of the right side suppurated, and two openings formed, one central and the other lateral and external, and discharged a great quantity of pus, which did not cease to flow up to the time of his admission. The examination of the wound, however, showed that the bone was not denuded, and the tumor at the left side was ascertained to belong to the periostium. Another of the same kind existed on the clavicle, near its articulation with the sternum. He was placed immediately on the use of the proto-
ioduret of mercury internally, and the sore was dressed with iodurretted honey. The tincture of iodine, diluted with twelve parts of water, was employed on both periostoses, and in seventeen days that on the forehead disappeared; that of the clavicle six days later.

Another periostosis, seated on the clavicle, in a female, stat. 30, admitted for syphilis, was similarly treated, and its complete resolution obtained on the eleventh dressing. During the six days the one part of tincture of iodine was used to twelve of water, and on the following days one part to eight.—London Lancet, April 1833.

40. New method of reducing dislocations of the humerus. By M. Maîgnè.—The entire profession has been struck with the simplicity of the mode of operating recently revived by M. Maîgnè with so much success. The following recent case of its successful employment fully confirms the advantage of this method.

On the 4th of February, at four P.M., a water porter named Claverole, stat. 25, of weak constitution and feeble muscles, presented himself at the Hôpital St. Louis. He was affected with a luxation of the humerus of only an hour's occurrence, and which was occasioned by his horse suddenly rearing up, and descending with his feet on each of Claverole's shoulders with such violence, that the shoulder was thrust out of its cavity, and a severe contusion produced at the corresponding side of the thorax. The state of the patient did not allow any mistake as to the existence of a luxation downwards, which was sufficiently proved by the elongation of the arm, and impossibility of lifting the hand to the head, the depression of the deltoid below the acromion, the separation of the elbow from the body, the projection of the head of the humerus in the hollow of the axilla, and the elevation of the pectoral muscles below the clavicle. The reduction was effected in the following manner:—The patient being seated on a solid chair, the shoulder was fixed by an assistant's hands pressing from above downwards on the acromion. The operator, placed at the outer side, seized in his right hand the forearm a little below the elbow, and lifted it up gradually on a parallel with the axis of the trunk, exercising at the same time a moderate degree of extension, and pressing with the points of the fingers of the left hand the head of the humerus in a direction upwards and outwards. The arm had scarcely reached the vertical position, when, almost without effort, and without any suffering on the part of the patient, the head of the bone returned to the articulating cavity, with the ordinary noise; the shoulder instantly regained its roundness, and the patient was able to move his arm. The fractured clavicle bandage was then applied in order to prevent a new displacement.—London Lancet, March, 1833; from Lanette Francais.

41. M. Larrey, made to the Institute of France, in his name and that of M. Boyer, an unfavorable opinion upon an operation proposed by M. Bertrand, for the cure of recent and small inguinal hernias. This operation consists in opening the hernial sac and introducing into it a pledge of lint. The reporter considers this method as offering few chances of success, and inviting in all cases very great danger to the patient. M. M. Duméril and Serres think on the contrary, that experiments upon animals tend to support the belief that this operation is useful in many cases, and is less dangerous than it has been represented.—Revue Médicale, January, 1833.

42. M. Maingault read to the Royal Academy of Medicine, some remarks relative to the utility of the introduction of caustic into the trachea, and the operation of tracheotomy which, he thinks, ought to be performed by making at first a small aperture, to be gradually enlarged. He thinks that if M. Bretonneau, pursued a different course, it was because the suffocation was imminent. Velpeau replied to M. Maingault, that the suffocation by the sudden admission of air into the trachea is not satisfactorily proved; that there are no grounds for affirming that death was occasioned from this cause, in the cases in which the operation
was performed by Brétonneau, therefore that the gradual enlargement of the opening is without utility and unnecessary, and that it is better to make a large and free opening at once. Although only four out of fourteen cases operated on in this manner terminated favorably. M. Velpeau thinks this ought to be attributed to the hopeless character of the cases. The operator was, moreover, at that period ignorant of the necessity of making a free opening, it having been generally believed that an aperture large enough to receive a common quill or small tube was sufficient. That this is not true, he remarks, is proved by the introduction of a tube of that size into one of the nostrils, while the other is closed, which will not enable the individual to breathe even for half an hour. Maingault objects to the employment of all topical applications as altogether useless. Velpeau, however, affirms in reply, that four examples of success obtained by Brétonneau from their use, and a fifth by Trousseau, speak conclusively in their favor. Brétonneau introduces the solution of the nitrate of silver into the trachea by means of a small sponge, which is slightly squeezed to make the liquid escape. He thinks that the cauterization thus employed changes the character of the inflammation, in the same manner that that change is effected by the application of the solid nitrate of silver to the faucæ in anginosæ affections. A similar effect is produced by the insufflation of alum into the trachea.—Archives Générales, January, 1883.

43. Notice of the advantages of the employment of Caustic in the treatment of incarnated nail. By M. Levrat Perrotton, M.D. of Lyons.—The author insists upon the advantages of the application of caustic potash, which converting into an eschar the fungous growth which envelopes the nail, permits the patient to walk with ease when the action of the caustic is over, and causes immediately to cease, the pain produced by the nail having entered into the flesh. He quotes on this occasion the passage of Ambrose Paré, treating of incarnated nail. “I will further say” (remarks this illustrious surgeon) “that there are many in whom the nails enter into the flesh of the toes which cause them extreme pain, and often they are not benefitted by cutting off the nail, for growing again it causes equal pain, and then to effect a cure it is necessary to cut off entirely the flesh in which the portion of the nail is embedded, which I have often done with good result.” It is to this operation that M. Levrat Perrotton prefers the destruction of the flesh by caustic.—Transactions Médicales, Jan. 1883.—Revue Médicale, March, 1883.

PHARMACY.

44. Mr. Blanche in a note addressed to the Academy of Medicine, relative to the formation of pillular masses, containing neither mercury or its oxides, points out the inconveniences which result from percussion, employed during the process. He says that it has the effect to expel or de-oxygenize the metal, and hence deprive the mass of its most active ingredient.

45. Purification of gum-resins.—From careful examination of the results obtained by the usual mode of purifying gum-resins, by dissolving them in alcohol, vinegar, or water, straining the solution and evaporating to a gummy consistence, M. Mouchon, Jr. of Lyons, has come to the conclusion that they should be abandoned; his experiments having proved a considerable loss, in their efficiency to take place. He recommends that the depuration should be accomplished by treating with twelve ounces of this menstruum a single pound of these resin in tears, or a pound when they occur in masses, and then washing the impurities resting on the linen through which they are strained, four ounces of dilute alcohol at 200 and again straining.

But, says the author, I again repeat that this purification should never be practised but in indispensible cases, where pulverization cannot be allowed.
All these operations appear to him prejudicial to the gum-resins, however simple they may be, or however skilfully the manipulation may be conducted.

In accordance with these views, Mr. Muchon has submitted a formula for the preparation of the diachylon, with gum plaster— which he says, produces a plaster sensibly more aromatic, more adhesive, and of much better color than any other recipe at present in use affords.

46. M. Fabre Palaprat, has discovered a means of introducing medicinal substances into particular regions of the body, by means of a galvanic current. To demonstrate the possibility of this he conceived it necessary to employ some substance which was not among those, which were found habitually in the human body, at least at the surface of the skin, and which could easily be known by re-agents. The hydriodate of potassa appeared to combine all the necessary properties, and he placed upon one of his arms a compress soaked with a solution of this salt in distilled water, then placed on the other arm a solution of starch. The communication was then established between them by the poles of a galvanic battery, and the starch immediately assumed the violet color. Hence he infers, that the hydriodate has been carried by the galvanic current, to the opposite side of the body where it found the starch, and is deposited or combined with it. He has satisfied himself by carefully prosecuted experiments, that the iodine does not follow the surface of the body. He also announces that he has in this mode succeeded in curing several affictions which had resisted ordinary modes of treatment; among others an enormous sarcocele, and a quartan fever, the substances introduced in this way have been iodine and quinine. His results have convinced him that one may at will, either cause the substance thus transported to remain in the body, or having traversed it to pass out. In the former case it is to be done by electro-puncture. The matter was referred to Messrs. Magendie, Becquol and Savart. Jour. de C. Med.

47. Chloride of lime, a remedy for the itch.—Mr. Fantonetti, professor at the University of Paris, has just communicated his experience respecting the employment and efficiency of liquid chloride of lime for the itch, and its promptitude as a remedy. The facts are analogous to those formerly communicated in this journal by Mr. Derhims. Eight patients were treated by the chloride; of this number two women who had a violent attack were cured in six days. Of the remaining six, five were cured in from sixteen to eighteen days—with one the itch was replaced by a general eczema which was removed by warm bath.

The proportion, advised by M. Fantonetti for adults, is 1½ or 2 oz. dissolved in 1 lb. of water, used as a lotion three or four times in a day, on the affected spots. For children the proportion is 1 oz. to 1 lb. Every third day the patient should take a warm bath for the purpose of washing and cleansing the skin, and calming an irritation which is sometimes produced by employing the solution of the chloride too strong or too frequently.

M. Fantonetti feels assured that this remedy is most sure, prompt in its effects and economical. In addition to this we quote from the "Annales de Chimie."—"Chlorine has been employed with success as an antip erratic, to combat the most refractory itch. The sanitary effects of this body have been established at Flessingue, in 1810, by Mr. Clusel. This pharmacist observed, that the Spanish prisoners affected with itch, who dipped their hands in vessels containing liquid chlorine, which was destined to guard against contagious fevers, attested its excellent effects against this malady. And that one of them who was covered with a horrible itch which had resisted all other remedies was cured, by the use of applications of chlorine."—Journ. de Chim. Med.
MEDICAL JURISPRUDENCE.

48. The tone of assurance and readiness with which witnesses sometimes speak in relation to the period which may have elapsed after the discharge of a piece of fire-arms, have induced Mr. P. H. Boutigny, Pharmacist of Evreux, to investigate the subject, with a view to the attainment of certain information on the subject. The particular occasion which led to this investigation, was the accusation of a man before the assize court, during this year, of an attempt at assassination by means of a gun. On his trial a gens d'arme, questioned as to the period which had elapsed since the discharge of a gun found at the residence of the accused, replied that it could not have been more than four days, because the dirt about the hammer or pan was black, which would not have been the case if ten or twelve days had supervened.—In this latter case the dirt would have been yellow, said the witness without hesitation. Another witness, a skilful armurer, questioned as to the same fact, replied that the trace of the powder was moist after three days, but after fifteen, the same traces were dry and pulverulent. Nevertheless, this witness had known a case where the powder was moist after fifteen days, but this he attributed to the effect of the atmosphere.

Another question arose during the discussion, whether the shot extricated from the wounded man, was the same as was represented to have been sold by a shop-keeper from whom the accused was believed to have purchased that destined to accomplish his murderous purposes. Every body seemed satisfied on this point, and it was declared that it was shot No. 2, and that the identity was perfect. Finally, an accusing wad, picked up on the spot where the crime was committed, was present to augment the probability of the guilt of the accused. But the paper of the wad did not fit with some pieces of paper found at the prisoner's house; on the other hand, it was the same color, (blue) the same appearance, and the same thickness: the most practised eye—the most exact attention, and the most minute examination, could not perceive the difference between this wad and the paper found and seized at the house of the accused.

All these proofs, or rather appearances, Mr. Boutigny thinks should be insufficient to declare the sentence of death; or without better information or more certain grounds for their convictions, should juries, find the accused guilty, we should in every case have to regret the lot of the suspected criminal, whose interests are equally sacred, with those of the society which accuses him.

The first examination made was, as to the paper; and, says the author, who can say that two pieces of blue paper are dyed with the same material, or that they are identical? Does not every one know that prussian blue, indigo, turnsole, &c. may be used for dyeing, and can any one say that they are identical without having analyzed them? And if upon testing with any acid, one should be found reddened and the other not, should not we have reason to consider them different, although their physical characters appeared identical? It is useless here to remark the influence which such a result or the reverse would have on the convictions of the jurors.

As regards the identity of the shot, the size of their diameter should not be sufficient in a court of justice to satisfy us that those taken from a wound were identical with such as may have been found at the house of the accused. To establish such a fact, it is necessary before proceeding to the analysis of the two kinds, to be aware of their composition. It is well known, that perfectly pure shot is rarely met with, even if it indeed exist: the metal is always alloyed with antimony, arsenic, or even silver: sometimes too it contains sulphur or copper. It would seem sufficient to have pointed out the numerous differences which exist among different parcels of shot, to render apparent, how important the result of a chemical analysis may be. The examination of the fire-arms themselves is thought by the author to be the most important of all.
the investigations which he proposed to undertake; hence it was the subject of a most minute attention of experiments as numerous as they were various. The following routine was that by which he arrived at the solution of the important question.

With the naked eye he first examined the traces of the powder upon the hammer; and next reviewed his examination with the aid of a good lens, and noted the physical characters of the film: after this, the crust was carefully removed and subjected to analysis, in the moist way, with a variety of re-agents.

In a tabular view Mr. Boutigny gives the results of twenty-one different examinations made at intervals of from one minute, after the discharge of the piece, to fifty days. An inspection of the table shows that arsenious acid and barytes water, are useless as tests. It then rests only to show the results of the experiments and their consequences.

Of Physical Characters.—No certain intelligence can be gained from the color of the film, which is in almost every case the same; nor from its hygrometric condition, which must necessarily vary from temperature and locality. It is not so with the red oxide of iron, found on that part of the barrel corresponding to the pan—the presence of which infers that at least two days have elapsed since the piece was discharged, and its absence that they have not.

The same inferences may be drawn from the presence or absence of crystals in the pan.

Analysis by Re-agents.—The application of the re-agents indicate, 1st. The presence of a hydro sulphate. 2d. Sulphuric acid. 3d. The absence of a salt of iron; rather later its presence, then its disappearance, if not complete, at least in a great measure. Hence upon this salt chiefly depends the whole course of the analysis. In reviewing the chemical and physical characters of this matter, the whole results may be divided into four classes, which indicate as many periods.

The first period lasts but two hours, and is characterized by the bluish black color of the crust, the absence of the crystals, of the red oxide of iron, of the salt of iron, the slightly amber-colored solution, the presence of a hydro sulphate.

Second period.—This is for twenty-four hours, and the color of the crust is less intense; it is characterized by the turbidity of the solution, the absence of hydro sulphuric acid, of the crystals, of the red oxide of iron, and by the presence of a few atoms of a salt of iron.

Third period.—This lasts for six days.—It is characterized by the existence of small crystals in the pan. These crystals are elongate, in proportion as the period elapsed since the discharge of the piece has been prolonged. There also exists upon that part of the barrel near the hammer, and particularly the pan, numerous specks of red oxide of iron.—Tinct. of galls, and ferro-hydroxyante of potassa indicate the presence of a salt of iron.

Fourth period.—This lasts up to the fiftieth day.—It differs from the third, by there being a much less quantity of the salt of iron and a greater of the red oxide.

From all these experiments we may conclude, that a piece of fire arms of which the crust on the pan exhibits the preceding physical and chemical characters of the first period, has been discharged at least two hours or more; exhibiting the characters of the second, at least two hours and not more than twenty-four; of the third, at least twenty-four hours and not more than six days; and finally of the fourth, that at least six days and not more than fifty have elapsed since the discharge of the piece.

It results from this, 1st. that it is possible to assign within some hours, and a few days after, at what period fire arms have been used, 2nd. that the witness who asserted that the crust should have been yellowish was deceived, as during the period of fifty days Mr. B. never remarked this color. This minute investigation, is followed by an account of the formation and disappearance of the sulphate of iron, which as it does not particularly relate to Medical Jurisprudence, we shall not introduce here. A curious remark Mr. Boutigny has made, that at no period, not even after the fiftieth day, is there any oxide of iron adhering to the pan, although it exists in considerable quantity on the barrel. He says
Statistics.

this fact confirms an observation of M. Payen, that the alkalies preserve iron from oxidation; and it proves also that potassa is the chief result of the combustion of gunpowder. The author has promised to pursue his investigations, on guns having copper pans and those with percussion locks.—*Jour. de Chimie Med.*

49. The presence of Arsenic in Glass.—A commissioner reported the death of a person as caused by arsenic, to the municipal authorities, after a chemical examination of the stomach, and shortly after, one of those employed addressed a letter to the procureur-general, retracting his opinion, and made a deposition before the court that in his opinion the arsenic was derived from the glass tubes employed in the analytic experiments. His colleague, not partaking of this opinion, addressed a request to the proper authorities that the matter might be investigated, and introduced therein the following observations founded on the opinions of the other—"If the presence of arsenic in the glass of the tubes or chemical vessels, be recognized, and it be demonstrated that this arsenic, when the glasses are at a red heat is reduced to a metallic state, and deposits itself on the sides of the tube, it will result that all judicial reports (on poisoning by arsenic) will be incorrect, imperfect and null, and that in consequence all the judgments should be recalled, and those convicted if not reinstated, at least dismissed absolved."

This memoir was handed to the Royal Academy of Medicine, who referred it to a committee to examine; the result of their examination, after a great many experiments, as reported by Pelletier, demonstrated positively that the glass employed in their investigations could not have contained arsenic, that the white glass of France never contains, or but very rarely very small quantities of, arsenic; that glass tubes, in whose composition a 1-600 or 1-500 of oxide of arsenic exists furnish no trace neither by heating, nor by re-agents; that the glass of Bohemia is not admitted into France, and that its high price would exclude it from use; that the arsenic sometimes employed in very small quantity is volatilized by the heat; and that the glass never contains it; that when arsenic has been found in glass it has never been heated at a sufficiently high temperature. As to re-agents they have no action when the glass is perfectly transparent, because there is then no arsenic. M. Pelletier endeavoured to make some arsenical glasses by forcing a proportion of arseniate of soda—the glass was then greenish, partly transparent and partly opaque. Dissolved and treated with tests it gave but imponderable traces of arsenic. Hence it is difficult to obtain arsenical glasses; they are not transparent; do not afford sufficient traces to account for accidents; it is impossible they can mislead the experimenter if due care be employed; and finally if the glass is transparent it does not contain arsenic and cannot lead to false results.—*Jour. de Chimie Med.*

(We have given the remarks from the Journal above quoted, from the circumstance that on a recent trial in this city the chemical witnesses were questioned with regard to this very fact, and gave in their opinions, founded on the nature of the two substances, and the process of manufacture, corresponding with the results of the report above quoted. It is no less gratifying to these gentlemen to find their judgment sustained by the experiments and inductions of so distinguished a chemist as Pelletier, than important for general information, that it should be widely disseminated that these facts are ascertained and established.)

W. F——.

STATISTICS.

50. In a memoir recently read by Moreau-de Jonnes on the comparative mortality of different countries of Europe, he remarks that the causes which influence the population of those countries affect the mortality more than the reproduction. In relation to births the maximum is scarcely double the minimum, while for the deaths, it is under ordinary circumstances nearly triple (22,59). According to tables drawn up by him from various authentic documents, the annual deaths in the Roman states and the ancient Venetian possessions are 1 in 50,—in Italy,
Statistics.

Greece and Turkey 1 in 30,—in the Low countries, France, Prussia, 1 in 39,—Switzerland, Austria, Portugal, Spain, 1 in 40,—European Russia, Poland, 1 in 44,—Germany, Denmark, Sweden, 1 in 45,—Norway 1 in 48,—Ireland 1 in 53,—England 1 in 58,—Scotland and Ireland, 1 in 59.

Two great causes mainly determine the relationship of the mortality to the population:—the influence of climate and civilization. A cold climate, even when rigorous, eminently favors the prolongation of life; and this even holds good when to a low temperature is superadded the humidity which exists in the vicinity of the ocean. Temperate climates which seem so favorable to the human species, are those, on the contrary, in which life is exposed to the greatest hazards. Regions situated within the torrid zone, the mortality of which has been calculated, exemplify the pernicious influence exercised by a high temperature upon human existence. Thus at Batavia situated in latitude 6° 10' the mortality is 1 in 261—Trinidad, 10° 10', 1 in 27—St. Lucie, 13° 54', 1 in 27—Martinique, 14° 44', 1 in 28—Guadeloupe, 16° 20', 1 in 27—Bombay, 18° 50', 1 in 28—Havana, 23° 11', 1 in 33.

The capability of the powers of life to resist these influences between the tropics differs in the different races, and the duration of life is with the natives of those regions double or triple what it is with others. Thus at Batavia, in 1805, the deaths amongst the Europeans, was 1 in 11—the Slaves, 1 in 13—the Chinese, 1 in 28—the Javanese, 1 in 40.—At Guadeloupe, from 1816 to 1824, with the Whites, it was 1 in 294—the free blacks and colored, 1 in 55.—At Martinique in 1817:—Whites 1 in 24—the free blacks and colored, 1 in 33.

With this mortality of the torrid zone may be compared that of Madeira, the only tropical establishment within the temperate zone. It has been estimated by Heberden that in this island the proportion of deaths to the whole population is in the ratio of 1 to 50.

The influence exercised by the degrees of civilization are not less important than that of climate. In Sweden, where the mortality from 1754 to 1763 was 1 in 34, it was from 1820 to 1825 only 1 in 45. A manifest diminution has likewise taken place in Denmark, Germany, Russia, Holland and Italy. In Great Britain, from 1787 to 1799 it was 1 in 45;—in 1800, 1804, 1 in 47;—in England alone, it was, in 1690, 1 in 35;—in 1821, 1 in 58;—in France, in 1776, 1 in 25;—in 1825, 1827, 1 in 39. The mortality of Russia and Norway has remained stationary for thirty years;—in Naples it has increased. About 60 years ago, it was estimated by Greesmilch, that the ratio of mortality throughout Europe was 1 in 36. According to the present estimate of Moreau-de-Jonnes, it is only 1 in 40, so that it has diminished one-ninth. He thinks, however, that the estimate of Greesmilch was much too low, and that at the time at which he wrote it was at least 1 in 30. This would give a much greater diminution at the present time.—*Archives Générales, September*, 1833.
CASE in which a large tumor and abscess of the mamma attended with hemorrhage was successfully extirpated. By WASHINGTON W. HITT, M.D. of Vincennes, Indiana.—Mrs. Holmes, the subject of this case, aged twenty-four years, about twelve years ago, when her system commenced its expansion, discovered her left breast gradually to increase in size, and to continue to grow after the system had received its ultimate development; giving her no pain and consequently no uneasiness or alarm until after she was united in marriage to her present husband. During pregnancy she thought it increased more rapidly, and after she was delivered of her first child, its increase became more evident and alarming. A few days after the birth of the child, the gland had every appearance, as she thought, of having secreted milk, and so much distressed that medical advice was thought necessary, and was obtained. The child was denied access to the enlarged breast, and stimulating applications prescribed with the view to suspend the secreting process. About this time she thinks a redness appeared, circumscribed to about the size of half a crown, one inch to the right of the nipple; which redness or inflammation soon gave place to suppuration and a discharge of a fluid the color and consistence of which she does not now recollect. After discharging a few days it entirely healed, and no perceptible change was discovered until the second accouchement. Between her first and second pregnancy her medical attendant, she states, was as assiduous as unsuccessful in his endeavors to discuss the tumor, by the exhibition of medicine internally and externally, until ptymalism was produced and continued for some time.

On Christmas last, she was delivered of her second and last child, when the tumor again resumed its progressive march, and by its accelerated action and unyielding disposition, produced in the mind of the patient the most awful apprehensions. The following April, I first saw her, having been called to relieve her of an attack of fever, at which time the tumor was shown to me as a curiosity. And what will be thought surprising in a subsequent part of this history, the child was then applied to the enormous breast, which from its magnitude looked very unlike the mamma. I then had ocular demonstration of the fact that secretion of milk was performed; and the child’s healthful aspect itself proved it to be amply supplied with the pabulum of life. The tumor at this time was not particularly examined as it was not requested, and I did not see the patient again until the first of July following. She was then much alarmed in consequence of a circumscribed redness, the size of a crown, appearing about four inches below the nipple, and which having subsided left to the feel of the finger, evident fluctuation. The external appearance of the tumor was smooth, uniform and elastic; possessing but little sensibility, and slight soreness on pressure. Upon pressing the sides of the tumor with the fingers, the internal structure imparted an uneven and irregular feeling. Its largest circumference measured thirty-two inches, and its base twenty-two. Its supposed weight from fifteen to twenty pounds. It was supported by a bandage from the neck, assisted by the left arm and hand, which were constantly applied beneath it. None of the neighboring glands were implicated. Considering the circumstances of the case, the age and comparatively good constitution of the patient, I gave an opinion that extirpation was not only advisable, but would be the only possible means of her salvation from an untimely grave. She did not fully determine to submit to an operation until the above opinion was corroborated by the opinions of several gentlemen now present, who did me the kindness to examine the tumor.
American Intelligence.

Her mind being fully made up, the 20th July was appointed for the operation. From an unyielding desire to undergo the painful ordeal among her nearest kindred, from which she could not be dissuaded, she was conveyed in a carriage twenty-two miles north of this place, a few days previous. Every preparation being made, my friend Dr. Somes and myself set off on the 19th, and on our way met an acquaintance just from the patient, who stated that nature had anticipated us, and had performed the operation by the tumor's bursting and discharging, &c. We went on however, and found the tumor collapsed and still discharging gradually a fluid, the color and consistence of which resembled thick rich cream. Judging from the vessels containing the fluid, and also the condition of her clothes there must have been at least one gallon discharged.

The fluid had a pulpy feel and peculiar smell, not offensive however. The probe could be applied in several directions, and in some it was not of sufficient length to determine its boundaries. The minds of the patient and her friends were much relieved, supposing the late occurrence would supersede the necessity of an operation; and in vain did we endeavor to convince them otherwise. We deemed it useless to insist on an operation under existing circumstances, but contented ourselves with controverting the notion that its discharge was a sufficient reason to delay the operation, and told them it was probable she would be placed under less favorable circumstances for an operation when it would be absolutely necessary for one to be performed. After expressing our views we passed on to Terre Haute. While there our patient was taken with a remittent fever, and during the second exacerbation of fever the blood vessels of the tumor gave way, and an alarming hemorrhage ensued. A messenger was immediately dispatched, and we were hurried back to the patient. July 26, we found her much exhausted from fever and loss of blood and still bleeding. In consultation with Drs. Somes, Davis, Chowrer and Elliott, it was agreed that an operation was the only possible expedient to save her from a speedy dissolution, and that even that was extremely doubtful under existing circumstances—such as her debility, considerable fever, the quantity of blood she had already lost, her mind agitated with fearful apprehensions, the tumor collapsed into a loose mass, all tending to an unfavorable prognosis. By the assistance of the above named gentlemen, the operation was commenced in the usual way of extirpating cancerous breasts, by making two semicircular incisions; dissecting back a sufficiency of the integuments, to cover the exposed surface after the removal of the tumor. The tumor was then cautiously dissected from above downwards, great care being taken to tie the arteries as they were exposed. Thus the whole tumor was carefully and entirely removed, leaving the pectoral muscle bare. The patient was then laid on the bed to recover from syncope, the flaps lying open and the whole covered with lint. She was supported by wine and water, as occasion required. After she had somewhat revived, and finding no hemorrhage on raising the lint, the flaps were properly adjusted and retained by adhesive straps. The compress and bandage completed the dressings. In a few days her fever subsided, the healing process commenced and kindly progressed. Three-fourths of the flaps healed by the first intention—and in three weeks from the day of operating she returned to her domestic circle;—when three weeks more completed the entire healing of the wound.

Dissection of the Tumor.—The tumor was opened by cutting through a thick capsule made up apparently of condensed cellular substance. On its surface next the skin the capsule firmly adhered. The substance of which the principal part of the tumor was composed, was made up of irregularly shaped masses, in color and texture somewhat resembling the masses which compose the pancreas, and appeared to be connected with each other by a fibrous substance of a looser texture.

A small portion extending from the nipple to the clavicular margin of the tumor bore the appearance of healthy gland. This was half an inch thick at the nipple, and gradually increased in thickness as it ascended to the margin, and composed perhaps one-twelfth part of the whole, separate from the fluid. And it is remarkable in this case, considering how small a portion of the whole
mamma was in a healthy state, and shaped as it was, that milk was pressed from the nipple only two weeks previous to the operation.

The cavity of the tumor occupied its centre, extending principally below, and three or four inches above.

An Introductory Lecture delivered to the Medical Class of the University of Maryland, on Friday, October 31, 1833.—By ROBLEY DUNGILSON, M.D. Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence in the University of Maryland.—Published by the Medical Class.

In this chaste and interesting lecture, the author has given a very able detail of the various superstitions which have from the earliest periods been incorporated with the different departments of the healing art, and especially with the branches of Materia Medica and Medical Jurisprudence. If any facts were wanting to prove the progressive march of science, and the blessings afforded by its influence, they are amply furnished by the rejection of these crude and darkening superstitions in our days, by all intelligent individuals. Although they once received the sanction of the sage and the philosopher, they are now only to be found amongst the ignorant and the credulous.

The friends of the University of Maryland have every reason to felicitate themselves upon the valuable acquisition which the institution has secured in Professor Dungilson. With a mind richly stored in all the principles of science — vigorous and fertile in resources, and possessed of an ease and earnestness of manner, and a felicity of elocution, which infuse an interest into the driest and most abstruse subjects, and rivet the attention of his audience; he brings to the execution of his task qualifications which few are so fortunate as to possess. The prospects of the University have never been more flattering. By the liberality of the trustees, important additions have been made to the museum and library; and when, in addition to this, we take into account the facilities afforded in Baltimore for the prosecution of anatomical investigations and clinical instruction; and in short, the existence of all the requisites of a medical school, brought as they are into efficient operation by the zealous exertions of the faculty, we cannot doubt for a moment the increasing reputation and usefulness of the school.—The number of the present class is about 140, and from the high satisfaction which we have heard expressed in all quarters by the young gentlemen who compose it, we feel assured, that in the course of another year the number will be greatly augmented.

PRIZE ESSAY—Proposed by the Medical Reform Association of England. For the three best essays on the following subject, three prizes are offered:

Subject—"On the present state of Medical Science and Practice in the United Kingdom, and the most advisable and efficient mode of promoting the advancement and the improvement of both in all their branches."

"For the best Essay will be awarded the sum of £50 sterling. For the second, the sum of £30: For the third, the sum of £20.

Conditions. (1) The competition is open to all persons, whether of the Medical profession or not, and the award will be made in public. (2) The Essays are to be written in the English, French, or Latin languages, and these only. (3) They must be transmitted to Dr. Epps, 89 Great Russel st. Bloomsbury, London, on or before the 1st day of March, 1834. (4) They must be clearly and neatly written, and not in the hand writing of the author. (5) Each Essay is to bear a motto, and to be accompanied by a sealed letter, with a corresponding motto to that inscribed upon the Essay. Within the sealed letter must be the name and the place of residence of the author. (6) None of the letters will be opened but those connected with the motto of successful Essays, and the unsuccessful Essays will be delivered, upon satisfactory reference by Dr. Epps. The Prize Essays will be returned to their accredited authors, who may, if they think proper, publish them for their own advantage, or otherwise they will be published by the Association.

Signed by one of the Association.  

John Epps, M.D. Hon'y Sec'y.
American Intelligence.

N. B. One hundred pounds, the amount of the three prizes, are already lodged with the Treasurer, Joseph Hume, Esq. M.P., who with the other judges will publicly deliver the several sums, as they shall be awarded to the successful candidates. The names of the other adjudicators will be published at a future and not distant period.

J. E.

A Lecture on Medical Education, Introductory to the Course of the Institutes of Medicine, in the University of Pennsylvania, for the session 1833-4.—By Samuel Jackson, M.D. Assistant Lecturer to the theory and practice of medicine, in the University of Pennsylvania, published by request of the class.

This able and eloquent Introductory Lecture is in every way creditable to the distinguished and well merited reputation of the author. The subject upon which it treats is one of deep and absorbing interest to our country, and we hail with pleasure this attempt, coming as it does from such a source, to arouse attention to the necessity of a radical reform in our system of medical education. Deeply impressed with the necessity of some change in this respect, we took occasion, at the commencement of our last course of lectures, to descant upon the subject, and we now rejoice that one more competent to do it justice has felt the importance of calling attention to it. Dr. Jackson asserts that it is not for the present generation to undertake a reform in medical education. To this we should be sorry to yield our assent. We hope that an object so important may not be delayed. The period has arrived in which it is loudly called for, and all that is necessary to accomplish it, is a concert of action between the different schools, and no one is so capable of taking the lead as that with which he himself is associated. Let him and his colleagues, therefore, take up the line of march in this crusade against ancient prejudices, and the remains of antiquated systems, and we feel assured that others will follow. Let them but say there must be a reform in our system of medical education, and contribute their mite to bring it about, and there need be no delay in its consummation. It need not be left to the rising generation, but the lapse of a few months will show it rapidly progressing, and a year or two will be sufficient to display its fruits in a better and more elevated standard of professional knowledge throughout our country.

We shall extract some of the concluding observations of the author. After speaking of some of the glaring defects of the present system, he observes:—

"What, it may be inquired, is the remedy for this state of things? A reform certainly. But, in rational and highly civilized society, where the passions and interests of man are not permitted blindly to rule, the first steps to reform, are to awaken a consciousness of existing defects; to produce a feeling of the necessity of reform, and a deep conviction of its necessity, in those whom it most concerns. The inventive talent of man, then, soon devises the best and most appropriate remedies for the evils he endures. He looks abroad, discovers the defects that defeat his schemes of happiness and amelioration; that oppose obstacles to his progress to a more improved condition; and escapes from their control, by providing a better and more perfect system. If unopposed by arbitrary power, deaf to argument, and impenetrable by remonstrance, the change is wrought slowly but surely; is the work of time, and of reason; is more finished and perfect in its details, and is accomplished in peace and safety. Improvement is effected; amelioration has been attained; knowledge has advanced; and society, benefited in its state, marches onward to its destined perfectionability.

"But if resisted in his earnest appeals for redemption from an oppressive condition, and in his aspirations for a better order of things, by inflexible prejudices, unyielding and pertinacious selfish interests, then, in political society, arise the excitement and storms of the passions, in whose wild tumults reason loses her ascendancy; rebellions and revolutions burst forth; the frame of civil society is rent and torn in fierce collision; physical contests decide the questions that moral considerations, calm and rational deliberations should regulate, and can alone bring to a felicitous conclusion. In the rude commotions thus excited, and in the shock of conflicting factions, desolation is the substitute of reform, and in the place of improvement, we look aghast on a scene of ruin and destruction. The
philosopher weeps over his blighted prospects of human perfection; the philanthropist sinks in despair.

"The improvement and reform which the medicine of this country impatiently awaits, do not consist in the formation of new schools, formed on the models of old institutions, treading in the same worn-out paths, and perpetuating ancient errors and systems. It requires an entire and new re-organization of medical instruction, elevating it to the level of the science that has been lifted on the rising tide of improvement far above the base where it was originally laid, and now nearly submerged by the wakening flood. It is a work that will never be accomplished by the rivalry of personal interests. It demands for its accomplishment the abatement of old courses, now too much considered, to their proper station; the introduction of new subjects, new branches and departments, of modern discovery and creation, and which are now composing the body of the science, yet which, unhappily, are so little known among us, that their names even to many sound strangely on the ear. With these changes is essential, the prolongation of the period of instruction.

"It is true, that in such a change, new sacrifices, new duties, new tasks, new labors will be imposed on the student. But with them will come augmented honor, more brilliant success, higher consideration, and greater rewards.

"Society is awakening to the true nature of our science, and more justly estimates the merits of its professors. Medical skill is not a gift of nature or an accidental endowment. It is the result of a well educated and disciplined mind, acting on comprehensive stores of knowledge; and knowledge is the fruit of laborious application and incessant research.

"Lessen your exertions now, refuse to meet and overcome the scientific difficulties of your profession, preferring inglorious ease to well directed exertion, and you reap hereafter shame; sink into an humbling mediocrity, from which you never rise to fortune or to fame.

"Can this reform be much longer postponed? I believe not. The interests of the profession—the immediate pecuniary interests of practitioners, are too deeply implicated, to admit that things should long continue in their present state. It cannot be concealed, that public confidence in the knowledge and intelligence of the profession has been shaken—has been most materially impaired in some sections of the country. Every where does empiricism abound. In many districts it is warmly patronized and encouraged, not by the vulgar and ignorant only, but by the respected and intelligent; and, in one state, I believe, has been legalized by statute. The ancient Galenical empiricism, long supposed completely at an end, is, in part, resuscitated; if not with all of its olden frivolities, with those not less extravagant of modern date. Whence arises this state of things? Is it not from the observation, too apparent to the public, of the inferior grade of medical instruction? Do they perceive that wide difference in the requirements of the regularly educated practitioner, and the empirical pretender, which should always distinguish them? In the regular practice, has not the treatment of diseases too much degenerated into a blind routine, pursued in nearly every disease, however dissimilar in nature? Can it be denied, but that the only difference between the regular practice and empirical practice, is a routine treatment of merely different remedies, and not always to the disadvantage of the empirical method? In an arithmetical estimate, I apprehend, in the long run, the calculation of chances, by either plan, may appear equal; and then the difference in cost, will decide the preference.

"There is but one mode of rescuing our profession from so degrading a rivalry; and that is, to raise the medical instruction of our country to a level with the philosophic character belonging to our science. Let medicine be, what in reality it is, a science of calculation, of combination, of induction, the elements of which are deduced from the phenomena of organized beings, and the relations of exterior agents with them, and you rise so infinitely above the crude and incorrect proceedings of empirical art, that the intelligent and observant, can never be deceived by its vain boastsings, or its illusory pretensions.

"A radical reform in medical education must before long be undertaken. It is
American Intelligence.

not to be our task—we have done our duty, in showing its necessity. It belongs to a rising generation—on you may and ought to devolve the important task of affecting it. It is the young, the ardent, the zealous, and devoted, who undertake and succeed in great and important changes; and no work of greater magnitude, of deeper and more lasting consequences, could crown your well directed exertions. To erect a system of medical education on the basis of positive philosophy, would place under obligations to you of the profoundest nature, society, your country, and the world. There is no achievement more worthy the measure of rational and honest ambition, or would surround its successful result with a brighter halo of imperishable renown. Let this be your work and such your reward.”

An Introductory Lecture delivered at the opening of the Medical College of the State of South Carolina.—By Samuel Henry Dickson, M.D. Professor of the Institutes and Practice of Medicine.

This eloquent lecture is executed in the usual happy style of the author, and is in every way creditable to his talents and acquirements. We rejoice that Professor Dickson has again resumed the important task of Medical Instruction, which circumstances induced him to abandon for a time. We are also pleased to find that the school with which he is associated has commenced its career under such favorable auspices. From a catalogue of the students with which we have been favored by Professor Wagner, we observe that the number of the present class is 104, besides the members of the senior class of the college of Charleston, who attend the lectures of Professor Ravenel on chemistry. We have been associated with the faculty of the medical college of the State of South Carolina both in the capacity of pupil and colleague, and while we can vouch for their zeal and abilities as teachers of medical science, we shall always be pleased to hear of the success and prosperity of their Institution.

Professor Dunglison is about to publish a work On the Influence of Various Physical and Moral Agents:—Climate and Locality, change of air, food, clothing, bathing, exercise and professions on Healthy Man,—constituting elements of private Hygiene, or of the art of Preserving Health.

Organization of the Faculty of Medicine of Paris.

The following list comprises the Faculty of Medicine of the Academy of Paris. It exhibits the courses of Medical Lectures delivered in that institution, in some measure indicates the character of medical instruction in that great emporium of science, and strongly contrasts with the meagre provisions of the schools of this country.

The faculty is composed of twenty-four professors, to whom are added an equal number of adjuncts (agréges.) The whole period of instruction consists of thirteen courses, which are divided into the winter and summer seasons. The winter courses commence November 2d, and are as follows:

For 1833.

COURSES.

Anatomy, Physiology, Medical Chemistry,
Surgical Pathology,
Medical Pathology,
Gen'l Pathology and Therapeutics,
Operations and Instruments,

PROFESSORS.

Cravelheir.
Bèrard.
Orfila.
Gerdy.
Marjolin.
Duméril.
Andral.
Broussais.
Richerand.
American Intelligence.

Clinical Surgery,  

Boyer,  
Roux,  
Dupuytren,  
Jules Cloquet.

Clinical Medicine,  

Rostan,  
Fouquier,  
Bouillaud.  
Chomel.

The Summer Courses commence April 2d, and are as follow:

COURSES.  

Medical Physics,  

Midwifery and Diseases of Women and Children,  

Pharmacy,  

Surgical Pathology,  

Medical Natural History,  

Hygiene,  

Legal Medicine,  

Medical Pathology,  

Therapeutics and Materia Medica,  

Clinical Surgery,  

Clinical Medicine,  

PROFESSORS.  
Pellestan.  
Moreau.  
Deyeux.  
Marjolin,  
Gerdy.  
Richard.  
Des Gennettes.  
Adelon.  
Dumeril,  
Andral.  
Alibert.  
Boyer,  
Roux.  
Dupuytren,  
Dubois.  
Rostan,  
Fouquier.  
Chomel.  
Bouillaud.

Clinical Midwifery.

The adjunts are elected by competition (au concours) to the number of twelve every three years. The period of their service is six years, divided into two periods of three years each. After the expiration of their service, they are Free Adjuncts. The professors are nominated only from those who have served as adjuncts, and no other can receive authority from the Grand Master to open private courses. The adjuncts in actual employment, supply the place of the professors in teaching, and they assist at the examinations.

The adjuncts are divided as follows:

SECTION OF MEDICINE.

Ten Adjuncts.—Pathology, 2; Hygiene, 1; Therapeutics, 1; Clinical courses, 4; Legal Medicine, 1; without specified duties, 1.

SECTION OF SURGERY.

Eight Adjuncts.—Pathology, 2; Operations and Instruments, 1; Clinical courses, 3; Midwifery, 1; Clinical Midwifery, 1.

SECTION OF ACCESSORY SCIENCES.

Anatomy, 1; Physiology, 1; Medical Physics, 1; Chemistry, 1; Medical Natural History, 1; Pharmacology, 1.

ADJUNCTS (agrégés) IN EMPLOYMENT, 1833.

MM. Bayle,  
Berard, (Auguste.)  
Blandin,  
Boyer, (Philippe.)  
Briquet,  
Brongniart,  
Brousse, (Cassimir.)  
Cottereau,  

MM. Dalmas,  
Doubled,  
Guérard,  
Hatin,  
Hourmann,  
Jobert,  
Laugier,  
Lequeur,  

MM. Martin Solon,  
Pierry,  
Regnier,  
Sanson, (Ainé.)  
Sanson, (Alphonse.)  
Royer Collard,  
Trousseau.
In addition to the regular lectures of the University, there are between forty and fifty private lectures delivered by the adjuncé, both the employed and unemployed, (agrégés en exercice et libres.)

The University of Paris has undergone repeated revisions, and the courses of instruction have been enlarged, with the expansions produced by the progress of scientific knowledge. The absence of this expansive character adapted to the progressive movement of science and the age, is the great defect of all our institutions for instruction. At this moment, a new revision in the medical department is in actual progress. The minister of Public Instruction some time past, appointed a commission, the members of which were MM. Cuvier, President; Richerand, Dumaril, Andral, Husson, Jules Cloquet and Jules Guérin. These commissioners were directed to institute a preparatory examination into all questions relative to a new organization of the Medical Faculty of Paris.

This commission, in their report, recommended the establishment of the following chairs, courses of lectures, and number of professors:

1. History of Medicine—one professor.
2. General, Comparative, and Pathological Anatomy—one professor.
3. Descriptive Anatomy—one professor.
4. Physiology—one professor.
5. Medical Physics—one professor.
6. Medical Chemistry—one professor.
7. Medical Natural History—one professor.
8. Materia Medica and Pharmacy—one professor.
10. Medical Jurisprudence—one professor.
11. General Pathology and Therapeutics—one professor.
12. Surgical Pathology—two professors.
16. Medical Clinic—four professors.
17. Surgical Clinic—three professors.
18. Midwifery Clinic—one professor.
19. Clinic for Diseases of Infants—one professor.
20. Clinic for Cutaneous, Scrofulous, Syphilitic Diseases—one professor.

The professors are to be elected by concours, and on the following evidence of qualification—1. An estimate of the antecedent medical titles and works of each candidate. 2. A printed dissertation, the subject of which shall be relative to the course of instruction, and which ought to be printed and published in the period of twenty days. 3. A general lecture, in which each candidate will expose the plan and method he proposes to follow, in the course he contemplates to deliver. 4. A special lecture, on a subject determined and drawn by lot, and which will always be relative to the subject of the chair, the object of competition.

"The commission has also provided for cases in which it would become necessary that the public should silence private interests; and, that a professor, burdened with years, who is no longer in a state to follow the progress of science, to march on with the movement of instruction, and to be further useful, to the pupils, it has fixed the period of retirement from the chair at sixty years."—Journal Universel et Hebdomadaire.

For the organization of the German Universities, and the ample provision of lectures, especially in the medical department, I would refer the reader to a note appended to the article "Universities," in the Encyclopedia Americana.

[Appendix to Prof. Jackson's Lecture.]
INDEX.

A.

Abscess with large tumor of the mamma excirpated, 505.
Ad-Orbital bone, Geoffrey St. Hilaire on, 294.
Agaric in Phthisis Pulmonalis, 460.
Alvine concretions passed through the walls of the abdomen, 458.
Andrai's Lecture on Migraine, 469.
Aneurism of the A. Innominate, Hall's case of, 195.
— of the Basilir Artery, 455.
— of the Carotid treated by ligation on the distal side of the tumor, 484.
Apoplectic death from aneurism of the Basilar Artery, 455.
Armstrong's bone and med. opinions, by F. Boote, 139.
Arsenic, process for reduction of, 240.
— Fowler's solution in Syphilis, 249.
— In choroiditis, 477.
— Does not exist in common glass, 503.
Asthma, Pathology and treatment of, 299.
Atresia of the Ileum Congenital, case of, 350.

B.

Beer's cases of secondary Syphilis treated with Fowler's solution, 249.
— do. of sub-cutaneous tumor, Ibid.
— do. in which a button was lodged in the esophagus 82 days, 250.
Baker, Professor, resignation of, 251.
Baranu's case of Ivory exostosis, 243.
Baudelocque on the treatment of Scrofula, 309.
Beck on doubtful suicide, 34.
Bell, Sir C. on the human voice, 441.
Belladonna in rigidity of the uterus, 239.
— Prophylactic virtues against Scaele, 326.
Bennett's case of extraordinary tumor, 349.
Bladder, case of bilocular, 351.
Blood, observations on, by Muller, 298.
Blundell on the mineral magnet in Rheumatic Gout, 467.
Boivin on diseases of the uterus, &c. 396.
Bone, ad-orbital, 294.
Boote's life and med. opinions of J. Armstrong, M.D. 139.
Bouillaud's case of hemaphrodism, 288.
Boutigny's process for the reduction of Arsenic, 240.
— Experiments on the discharge of fire arms, 501.

Brachet on Hysteria and Hypochondriasis, 375.
Brain, vice of conformation of, 456.
Brisson on white Agaric in Phthisis, 460.
Bulimia, extraordinary case of, 339.
Burdach's Physiology, 215.
Button lodged in the esophagus 82 days, 250.
Byrne on the contagiousness of Malignant Cholera, 429.

C

Cancer of the heart and kidneys, 449.
Carotid Aneurism successfully treated by ligation on the distal side, &c. 494.
Carnwall's Pathological Anatomy 306, 434.
Caustic in iscarrated nail, 498.
Chevalier on vaccination in hooping-cough, 464.
Chloride of Lime in Itch, 500.
Cholera, Spencer on, 203.
— contagiousness of, 429.
Cholera Infantum, Potter on, 104.
Chloris, Arsenic in, 477.
Chrome, poisoning with, 44.
Cold water, death from drinking, 295.
Conception, extra uterine, 231.
Concretions, Alvine passed through the walls of the abdomen, 469.
Congenital Atresia of the Ileum, 350.
Crampton on the pathology of dislocations of the shoulder joint, 493.
Cross on Delirium Tremens, 202.
— Nitric Acid in ptyalism, 461.
Crystalline Lens, muscular structure of, 234.
Cyanosis, cases of, 245, 249.
Cyclopedia of practical medicine, 251.

D

Devat's treatment of varicose veins, 237.
Death from drinking cold water, 298.
Deformity, Hereditary cases of, 452.
Dickson, Professor, Introductory Lecture of, 510.
Delirium Tremens, Cross on, 202.
Dislocation of the shoulder joint, Crampton on, 493.
— Malgaigne's method of reducing, 498.
Doubtful suicide, Beck on, 34.
Dropey treated with muricate of gold, 473.
Dropey, efficacy of Marchantia Hemsphereica in, 235.
Ducaet's Manual of Toxicology, 217.
Ducatel on poisoning with Chrome, 44.
Dugs on diseases of the Uterus, 396.
INDEX.

Duanbar's Galvanic experiments, 245.
Dunglison, Professor, appointment of in the
University of Maryland, 241.
—— Valedictory address, 232.
—— Introductory Lecture, 507.
—— New work announced, 510.
Dupuytren's Clinical Lectures, 485.
—— On Hydatid tumors, ibid.
—— Case of a cyst containing a human
fetus in the mesentery of a boy, 490.
Dutrochet on the endoamoe power of cer-
tain liquids, 241.

E.
Electricity for the cure of warts, 250.
Elements of Surgery, Liston's, 209.
Elephantiasi.s cured in seven days, Graaf, 236.
Emmon's case of Extra uterine Festation,
231.
Endoamoe, power of liquids, 241.
Erhardstein, extirpation of degenerated Ova-
tria, 237.
Escharotic paste, 241.
Exostosis, case of, 242.
Extra uterine conception, 231.
Extra uterine Festation, case of, 231.

F.
Fever, Harrison on the Pathology of, 276.
Fever, Latham on the duration of, 461.
Fire-arms, experiments to determine at what
period they have been discharged, 501.
Fletcher's Sketches, from the case book, 231.
Folicular gastro-enteritis, Geddings on, 50.
Foot on the oil of Lemons in affections of the
eye, 478.
Fowler's solution of Arsenic in secondary
syphilis, 249.
Fractures, apparatus for the treatment of,
Smith's, 13.
Fractures, thirty-one in the same individual,
459.

G.
Galvanic experiments, 245.
Galvanic current employed to introduce medi-
cines into the system, 500.
Ganglia treated with Iodine, 497.
Ganglion Oticum, alleged existence of, 439.
Gangrene of the lungs treated successfully,
463.
Geddings on Folicular gastro-enteritis, 50.
Geddings on the Pathology and treatment of
Asthma, 299.
Geoffroy St. Hilaire on the ad-orbital bone,
234.
Gold, muriate of, in Dropsey, 473.
Gout suspended by the mineral magnet, 467.
Graaf's case of Elephantiasis cured in seven
days, 236.
Guillain, death from, 457.
Gum Resins, purification of, 499.

H.
Halls case of ligature of the Insanominate, 
125.
Hardy's case of transposition of the viscera,
235.
Harrison on the Pathology of Fever, 276.
Hay's Cyclopaedia of practical medicine, 251.
—— Memoir on the fossil bones of the
mastodon, &c, 253.
Heart, tuberculous mass closing pulmonary
veins, 230.
—— Cancer of, 449.
—— Auricles and ventricles of, communi-
cating, 449.
—— Transfixed with a needle, 451.
Hemorrhage, secondary, Smith on, 353.
Hermapthrodium, Boulind's case of, 232.
Hernia, external division of stricture in, 483
—— Strangulated, with perforation of the
intestine, 236.
—— Method of reducing, 243.
—— new variety of, by Langier, 456.
Hillenkamp on the prophylactic virtues of
Belladonna in Scarcatinia, 236.
Hitt's case of tumor of mamma, 505.
Hooper on diseases of the uterus, 396.
Hooping cough cured by vaccination, 464.
Hope's illustrations of Pathological Anato-
my, 434.
Hosack's memoir on Staphyloraphy, 251.
Hunterian preparations of the Placenta, 227.
Hydrocephalus cured, 468.
Hydrocyanic acid, poisoning with, 219.
Hypochondriasis, 375.
Hysteria and Hypochondriasis, 489.

I.
Ileum, Atresia of, 250.
Inflammation, Rogerson on, 167.
Insanominate, Hall's case of ligature of, 125.
Intermittent Fever, saline in, 460.
Intussusception, case of, 248.
Iodine in the treatment of ganglia, 497.
Itch, cured by the chloride of lime, 500.
Jackson's introductory lecture on medical
education, 508.

K.
Key on the external division of the stricture
in strangulated Hernia, 423.
Kidnies, cancer of, 449.

L.
Lary, unfavorable report on Bertand's
method of treating Hernia, 498.
Latham on the duration of Fever, 461.
Lauth on the connexion between the uterus
and the placenta, 436.
Lemons, essential oil of, in affections of the
eye, 478.
—— Lens, Crystalline, Muscular structure of, 224.
Light of the A. Insanominate, Hall's case of,
125.
Liston's Elements of Surgery, 209.
Loewenhard, compression of the abdominal
Aorta to arrest uterine hemorrhage, 239.
Logan's Review of Brachet on Hysteria and
Hypochondriasis, 375.
INDEX.

M.
Magnet, mineral in rheumatic gout, 467.
Mainault's remarks on tracheotomy, 498.
Malagnie's method of reducing dislocations of the humerus, 498.
Marchantia hemisphérica in dropsey, 235.
Martin's observations on the reduction of hernia, 243.
Mastodon, fossil bones of, 252.
Mayer on the umbilical vesicle, 441.
Mayo and Stanley on the structure of the placentae, 227.
McDowell, Professor, resignation of, 251.
McKenzie on Arsenic in chronic lues, 477.
Medical education, lecture on, 508.
Medical School of Paris, 510.
Medicines introduced into the system by a galvanic current, 500.
Migraine, Andral's Lecture on, 489.
Mind, influence on the body, Fletcher on, 158.
Moreau's case of double uterus, 231.
Moreau de Jonnes' statistics of the mortality of different countries, 503.
Muller's observations on the blood, 228.
Muriae of gold in dropy, 473.
Muscular structure of the crystalline lens, 294.

N.
Naegle's case of absorption of the placenta, 239.
Needle lodged in the substance of the heart, 451.
Nerves, injury of the first pair attended with loss of smell, 451.
Neuralgia treated with strychnine, 473.

Prize questions of, 252.

O.
Oesophagus, button lodged in 89 days, 237.
Ophthalmitis, extraordinary dilatation of, 453.
Oil of Lemons in affections of the eye, 475.
Ovarian tumor, extirpation of, 237.

P.
Paste Escharotic, 241.
Pathological Anatomy, Carrell's, 208, 434.

Prize questions of, 454.
Pathological Contributions, Thomas', 361.
Pencarding from a needle being inserted into the heart, 451.
Phrenology in connexion with Physiognomy, 435.

Pathological Contributions to, 457.

Phthisis, white Agaric in, 460.
Treatment of, by Vitus, 460.
Physiology, Budzach's, 215.
Placenta, absorption of, 293.
connexion of, with the uterus, 436.
structure of, 227.
Pneumonia Biliosa, Potter on, 261.
Poisoning with hydrocyanic acid, 219.

Poisoning with datura Stramonium, 474.
Potter on Cholera Infantum, 104.
— on Pneumonia Biliosa, 261.
Prize questions of the New York Medical Society, 252.

— of the Medical Reform Association of England, 507.
Ptyalism, Cross on the treatment of, 461.
Pulmonary veins, occlusion of, 230.

R.
Regnier's case of communication through the septi of the auricles and ventricles of the heart, 449.
Renauld's case of Cancer of the heart, and kidneys, Ibid.
— Case in which a needle was found in the substance of the heart, 451.
Ricker on Belladonna in rigidity of the Uterus, 238.
Ricord on the employment of Iodine in ganglia, 497.
Ritta Christian, Anatomy of, 199.
Roberson on Inflammation, 167.

S.
Salicine in Intermittent Fevers, 460.
Scalena, prophylactic virtues of Belladona in, 236.
Schlemm on the alleged existence of otic ganglion, 439.
Schofield, Baudelocque on the treatment of, 409.
Serres' Transcendental Anatomy, 199.
Short on the Marchantia Hemisphérica in dropy, 235.
Shot passed from the urinary bladder, 372.
Sketches from the case book, Fletcher's, 159.
Skin, structure and Functions of, wood on the, 206.
Smith on Fractures, 13.
— on secondary hemorrhage, 353.
— Principles of Surgery, 252.
Muscular structure of the crystalline lens, 224.
Spackman's case of cyanosis, 449.
Spencer on Cholera, 203.
Sprengel's Physiognomy in connexion with Phrenology, 435.
Stanly and Mayo on the structure of the Placentae, 227.
Staphylopharyngia, Hoack's memo, 261.
Statistics, shewing the comparative mortality of different countries, 503.
Strammonium, poisoning with, 474.
Strychnine in Neuralgia, periodical head-ache, amenorrhoea and Hysteria, 473.
Subcutaneous tumor, 249.
Syphilis treated with Fowler's solution, 249.

T.
Tetracaulodon, fossil bones of, 252.
Thomas' Pathological contributions, 361.
— Case of intussusception, 243.
— Case of Cyanosis, Ibid.
Throat, removal of foreign bodies from, 360.

— On death from drinking cold water, 275.

Townsend’s case of occlusion of the pulmonary veins, 230.

Toxicology, Ducaté’s manual of, 217.

Trachea, foreign substance in, 459.

Tracheotomy, Maingault’s observation on, 438.

Trall’s case of Hydrocephalus, 468.


Transcendental Anatomy, Serres, 199.

Transposition of the viscera, Hardy’s case of, 232.

Tubercles of the heart closing the pulmonary veins, 230.

Tumor, extraordinary case of, attached to the occipital bone, 349.

U.

Umbilical vesicle, Mayer on, 441.

Uterine hemorrhage arrested by the compression of the abdomen, sorts, 239.

Uterus, rigidity of treated with Belladonna, 238.

Uterus, Double, Moreau’s case of, 231.

— Wentzel on the diseases of, 396.


V.

Vaccination for the cure of hooping-cough, 464.

Varicose veins, treatment of by obliteration, 237.

Veloce’s case of bilocular bladder, 231.

— case of strangulated hernia, with perforation of the intestine, 236.

Viscera, transposition of, 232.

Voice, Bell on the organs of, 441.

Voisin, singular cases of hereditary deformity, 452.

W.

Watson’s case in which shot were passed from the bladder, 372.

Warts cured by electricity, 250.

Welch on the employment of electricity for the cure of warts, 250.

Wenzel on the diseases of the uterus, 396.

Wood on the structure and functions of the skin, 250.
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