

TRANSACTIONS
OF THE
NATIONAL
ECLECTIC MEDICAL ASSOCIATION,
AT ITS
THIRD ANNUAL MEETING,
HELD AT
ROCHESTER, N. Y., MAY 11, 1852;
TOGETHER WITH THE
Accepted Reports presented by the Members.

ROCHESTER:
PUBLISHED BY ERASTUS DARROW,
CORNER OF MAIN AND ST. PAUL STREETS.
1852.

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Entered according to Act of Congress, in the year of our Lord one thousand
eight hundred and fifty-two,

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York.

PREFATORY.

TO THE ECLECTIC PROFESSION AND FRIENDS IN THE UNITED STATES AND CANADA :

In accordance with a vote of the members present, at the recent sitting of the National Eclectic Medical Association, the Committee appointed for the purpose herewith send forth, in form, the transactions of that body. In so doing, they beg leave to state that, in their opinion, the publication of the present humble volume marks an important era in the history of Medicine. As the first attempt at an organic expression of the *Eclectic sentiment* of the country, it is almost necessarily imperfect. But there is no room for doubt that hereafter, it will be followed annually by more worthy representatives of the cause.

Reports, upon Medical or other topics, naturally receive more attention in the preparation when they are expected to be made public. The Committee may safely say, however, that such was not the expectation of the writers of the Reports, presented at the late meeting of the Association. Some of these have had no revision, except at the hands of the Committee. Some of the accompanying papers are short, and present rather a local, than a general view, of the several questions under consideration in them. It is sufficient on this point to state that such, by the decision of the Association to publish, were taken unawares. The Committee have to regret that some important portions of the field of reformatory labor, are not as well represented in the following pages as their just deserts entitle them to be. One or two short communications, the Committee have thought proper to reject.

But these thoughts are thrown out by way of explanation, not of apology. The few minor defects which will be observed, will not, we are quite sure, be allowed to outweigh the positive excellences of the present volume. The publication of it, will be pronounced a judicious movement,—a step now made necessary by the increasing popularity of our principles, and the growing demand for light in relation to them, on the part of the people. If another reason be demanded, we find it in this:—that the time has arrived when the *eaglet* must soar, and take his place even above the birds of more practiced wing, in the clear, upper atmosphere of Truth and truthful success

The Committee do not hope that they have been able to discharge the duty imposed on them, in such a manner as to avoid all censure. The Chairman, especially, upon whose hands was devolved the immediate supervision of the matter and press-work, feels that he must appeal to the lenity of those for whom he has labored. He has, at least, bestowed faithful attention upon the task assigned him. But for the *decisive vote* of the Association, and the assurance of his friends since that action was had, he would not consent to occupy so considerable a portion of the pages of the minutes. The subject chosen did not seem to admit of narrower limits.

Actuated, however, solely by a desire to promote the good of the common cause, and to see the new medical truths of our day diffused and honored, the Committee submit the result of their labors to the candid consideration of the advocates of Medical Eclecticism.

LEVI REUBEN, M. D.	} Committee.
S. H. POTTER, M. D.	
E. S. PRESTON, M. D.	

TRANSACTIONS

OF THE

NATIONAL ECLECTIC MEDICAL ASSOCIATION,

AT ITS THIRD ANNUAL MEETING, HELD AT ROCHESTER, MAY 11, 1852.

The Association assembled in Minerva Hall, and the President, DR. R. S. NEWTON, being absent, DR. J. H. TILDEN, of Buffalo, N. Y., one of the Vice Presidents, called to order.

The regular Secretaries, Drs. KYLE and BADGER being absent, DR. L. C. DOLLEY was chosen Secretary, *pro tem*.

On motion of DR. DOLLEY, the names of the members present from the different states, together with some new members, were enrolled.

On motion of DR. POTTER, a committee was appointed consisting of one from each state represented, to nominate officers for the ensuing year.

DR. J. SITES, of Pa., DR. A. D. Skellenger, of O., DR. S. H. Potter, of N. Y., DR. J. Simms, of Del., DR. W. Burnham, of Mass., Miss M. K. Merrick, M. D., of Conn., and DR. L. N. Jones, of C. W., were duly elected said Committee.

On motion, Drs. C. Newton, O. Davis, and C. B. Robbins, were appointed a committee to report business for the Association.

DR. O. Davis, one of the standing committee appointed to prepare an Address, being called upon, addressed the Convention at considerable length, and presented in a forcible manner the character and claims of Eclectic Colleges and Physicians. He urged the necessity of a high standard of

qualifications, since in that lay the hope of our ultimate success.

Dr. S. H. Potter, chairman of the committee on nominations, reported the following names for officers for the coming year; and the gentlemen named were accordingly duly elected; viz:

CALVIN NEWTON, M. D., Worcester, Mass.—President.

A. D. SKELLENGER, M. D., Ruggles, Ohio—Vice President.

JOHN SIMMS, M. D., Wilmington, Del. “ “

L. C. DOLLEY, M. D., Rochester, N. Y.—Rec. Secretary.

S. H. POTTER, M. D., Syracuse, N. Y. “ “

J. R. BUCHANAN, M. D., Cin. O.—Corresponding Sec.

THOMAS COOKE, M. D., Phil. Pa. “ “

W. HENDERSON, M. D., Pittsburgh, Pa.—Treasurer.

On motion of Dr. J. Sites, the newly elected officers were conducted to their seats, and entered upon the discharge of their duties.

The President addressed the Association. He said that harmony and good feeling should prevail among those who were so deeply interested in the advancement and success of liberal medicine in various parts of our country, and especially among those who came together to consult its interests and well being, in the capacity of a National Association. He thanked the Association for the honor they had conferred upon him, and hoped he might receive their indulgence and forbearance, while he endeavored to discharge to the best of his knowledge the duties of presiding officer, over their deliberations.

Adjourned to 7½ P. M.

EVENING SESSION.

The Association met, pursuant to adjournment.

The proceedings of the Afternoon Session were read, and approved.

The President called for the reading of communications from absent members.

The communication of Dr. Wm. F. Smith of Phila., Pa., was objected to by Dr. Sites, on the ground of his entire unworthiness of fellowship with true Eclectics. Dr. Simms of Del. sustained the objection.

On motion, the President appointed Drs. Sites and O. Davis, a committee on the communication and standing of Dr. Smith.

It was moved, and adopted, that a committee of three be appointed on Publication and Finance.

Drs. L. Reuben, S. H. Potter and E. S. Preston were appointed such committee.

Communications from Drs. L. Oldshue, of Pittsburgh, J. Brown, of Allegany city, Pa., and C. H. Cleaveland, of Waterbury, Vt., were read by Dr. Potter, and referred to committee on publication.

LETTER FROM L. OLDSHUE, M. D.

GENTLEMEN OF THE CONVENTION :—I sincerely regret that circumstances prevent my enjoying the great gratification of an attendance at your session.

The glorious cause espoused by the Association, will no doubt collect a large circle of influential and distinguished men ; who have abandoned their pursuits, and sacrificed their comfort to assemble together there ; and that not for their own recreation, nor to promote private interests alone, but to take part in promoting the interests of all mankind.

By the showing of Professor Buchanan in a public lecture recently delivered in Cincinnati, the statistics warrant us in saying that the adoption of the Eclectic Practice of Medicine in the United States alone, would save over THREE HUNDRED THOUSAND lives per annum.

What a living mighty monument !

The lives we thus individually save, are so many moving signs and living advertisements, setting forth the value of our work, and the truth embodied in our system.

Five years ago I commenced practice in this place, building up for myself this little monument of flesh and blood, saved from the smouldering ruins of Allopathy.

Since that time I have treated over five thousand cases, and to the best of my knowledge, not twenty persons out of all that number, have yet been contributed to the Allopathic, or monument of *human bones* !

It is said that the Hebrew was mighty by the power of faith ; the Greek by knowledge of art ; and the Roman by power of arms. But *our* might, let me say to you, lies in the character of our work.

"In union there is strength ;" and in order to accomplish the greatest amount of good, we must *work*, and work together. This should be one grand object of the convention. They should take such measures as will preserve, foster and encourage unity and concert of action, and which shall cement into one compact body the whole Eclectic and liberal world.

Respectfully submitted,

L. OLDSHUE, M. D.

Pittsburgh, May, 1852.

LETTER FROM J. BROWN, M. D.

To the Eclectic Medical Convention :

GENTLEMEN :—It would have given me much pleasure to be present with you, but circumstances over which I have no control must prevent.

Your cause is a good one, and will prevail. But its progress and triumphs may be delayed by a want of unanimity among its friends. Be united in carrying out the principles of Eclecticism, and it will soon supersede all other systems of Medical practice.

The reason is very obvious to the reflecting mind. Other systems of medicine are limited to certain principles and prejudices of party, so that those persons who adhere to them cannot receive all new truths as they present themselves in the light of science and observation. But with us no barrier prevents a hearty reception of all discoveries, whether Pathological or Therapeutical.

Much praise is due our Cincinnati friends for their indefatigable exertions in giving us the concentrated preparations now in use, divested of woody fibre and inert matter. Our doses are now reduced to as small dimensions as is necessary or desirable.

At the last Eclectic Medical Convention, I was appointed with Drs. Henderson and Ewing, a Committee on Medical Statistics. I have accordingly endeavored to obtain such statistics as might be of interest to your body, but have not met with success.

In Alleghany city, the past year has been a very healthy one. There has been no prevailing epidemic disease, except Rubeola and Scarlatina. I have treated between 30 and 40 cases of Rubeola, with none fatal among the number. Some of these cases were severe, accompanied with a Typhoid Diathesis and Pulmonic Inflation. Under mild and safe means they all recovered rapidly. I used the Vinous Tinc. Ipecac in Expectorant and Diaphoretic doses, in nearly all of the cases. I gave strict attention to the cuticular surface, ordering ablutions once or twice a day. This treatment I found to quiet restlessness, lower the temperature, relax the capillary vessels, and answer nearly all the indications of the case.

Besides the regular form of Rubeola, I had several cases *sine exanthemate*. It may appear paradoxical to say that a child had measles without the eruption. I know that in several cases the patient had all the characteristic symptoms except the eruption. The disease was probably modified by the idiosyncrasy of the persons, or atmospheric influence.—

Whether this will secure them against an attack of the disease in future, I am not prepared to say.*

I have lately had a case of Angina Pectoris which proved fatal. The patient was over 60 years of age. His mother had died of the same disease, and this fact together with a belief that he would die, had a powerful effect in hastening his dissolution. I was called to see the patient in the night, administered some antispasmodic medicines, and he very soon obtained relief. The next day I ordered a Cathartic. This had the desired effect, and he continued free from an attack for two days. He was then again suddenly attacked with acute pain, and a sense of constriction at the lower end of the sternum. The pain extended to the heart, and along the left arm as far as the insertion of the deltoid muscle; and this was accompanied with the greatest anxiety, violent palpitation of the heart, laborious breathing, and a sense of suffocation. With only short intervals between the paroxysms, in less than an hour he was dead. Whether there is any organic lesion in this disease is a question upon which medical writers are not agreed. I am of the opinion that this case was essentially nervous, and that it was seated in the great nervous plexus of the heart. But the patient had arrived at a period of life when organic lesions are common.

The disease under consideration attacks men oftener than women. Out of 88 cases of this disease, 80 were males, and 76 were over 50 years of age. Out of 64 cases whose fate is recorded, 49 proved fatal.

Quite a number of cases of convulsions among children has occurred, chiefly of a sympathetic character, and I have invariably succeeded in removing them, except in one or two cases, when there was a manifest organic lesion which no system of medication could benefit. I have more confidence in the anti-spasmodic influence of Lobelia in this form of dis-

* Willan thinks irregular attacks generally do not.—Ed.

case than in any other article of the *materia medica*, although I never prescribe it, but in combination with other medicines. I have prescribed for over 1000 cases within a year past, of the different diseases prevalent in this city, and I cannot now recollect more than 5 fatal cases. One of these was an aged man suddenly cut off by a paralytic attack; one, a child which died of Hydrocephalus. My obstetrical practice has been very extensive. I made use of the forceps once only in the past year, but then with safety and success to both mother and child. The case was one of inertia of the uterus.

I believe that when the maternal organs are properly relaxed, and the state of the case requires any efforts beyond the disposition of the uterus to put forth, the use of the forceps must prove much more safe to the child than the administration of ergot, which is always attended with some risk.

I am respectfully yours,

J. BROWN, M. D.

Allegany City, May, 1852.

LETTER FROM C. H. CLEAVELAND, M. D.

GENTLEMEN OF THE CONVENTION:—I had confidently expected the pleasure of meeting with my Eclectic co-workers the present month, and personally expressing to them the gratitude I feel, in view of the noble stand they have taken, and the progress they have made in Medical Reform; but much to my regret, I find I shall not be able to absent myself from my business at this time. I therefore take the liberty of presenting this, my substitute, as the only means left for communing with the noble pioneers in the great reform of the day. Although I do not expect to endorse the theory, or the practice of any class, or body of physicians, whether styled Allopathic, Hydropathic, or Homeopathic, or known by any other *pathy*, in their entire scope; or to condemn any for ranging

themselves in either,—reserving to myself the right of “private judgment” in all medical matters, yet I do desire to make a “profession of faith,” and to co-operate with all who are willing to advance themselves, or to encourage others in all those measures calculated to secure to the community a well educated, liberal and conscientious body of Physicians.

So much of what is getting to be denominated “*old fog-ism*,” or by its admirers *conservatism*, has crept into the profession; and by so many has it been found that a reliance upon the dogmas of the *masters*, requires a far less amount of intellectual labor, than thorough individual investigation, to the encouragement of downright intellectual *laziness*, that many are getting to doubt the possibility of even galvanizing the old body of Physicians into life. The writer has had his hopes and his faith severely tested, and like many of the more discerning, has *almost* been led to conclude that the entire class of Physicians were a curse, rather than a blessing to the world. But hope is dispelling these doubts. On all sides there are hopeful indications. The American Medical Association, the most exclusive and aristocratic, (as we have been led to suppose from some of its acts,) of the *mutual admiration societies*, has been assailed, and must either yield the demanded reforms, or be utterly destroyed. The *Academy of Medicine*, too, in the city of New York, has received a wound which will prove fatal to it, unless a thorough course of *depuration* is adopted, and a vast amount of effete matter is thrown off.

Hydropathy is finding that water alone—except where administered as a religious rite—will not suffice to wash away all uncleanness and disease from the system; and Homeopathy no longer relies upon its *little or nothing doses*, but, sometimes secretly, sometimes openly, makes use of remedies of a potency not derived certainly from attenuation. Thomsonianism has discovered that the alimentary canal occupies an important place in the human organization, and is deserving

of more attention than Samuel Thomson gave it, and that sweating is not a sovereign specific; and *Chrono-thermalism* does not seem to possess sufficient vital warmth, to set the people in a glow of admiration.

All these various systems *must* possess some foundation of truth and reason, or reasoning beings would not have faith in them; but that either possesses the *entire* truth, cannot for a moment be maintained in the minds of any except those who will not be convinced of their error or ignorance. That body of physicians, who like the Eclectics, are willing to perform the labor of investigating these various theories, and to select the truth from the mass of error with which it is blended—deducing therefrom the great principles of a sanative medication—are deserving of, and will receive the lasting gratitude of enlightened philanthropists.

But it is to the non-medical public, and to the young men, who have not yet become indoctrinated into a faith in any of those exclusive ideas, that the true system must look for encouragement and support, and not to those already so long wedded to their dogmas, that a change of opinion in them can no longer be anticipated.

To the members of the Convention, I would say, take a high, a noble, and a firm stand; leave all matters of a controversial nature to those who by nature delight in quarrelings and disputations, and above all things, demand of those who aspire to the exalted title of "*Eclectic Physician*," that they train their minds to severe and diligent habits of thinking, and never allow themselves to rely upon their present amount of professional knowledge, however great that may be, but that they strive always to enlarge the boundaries of science, with a constant readiness to impart to all who may require it, their ever increasing knowledge. Thus may your future success far exceed your most sanguine expectations.

Very respectfully,

C. H. CLEAVELAND, M. D.

Waterbury, Vt., May, 1852.

The committee to whom was referred the communication of Dr. Smith, reported adversely to the reception of the same, and recommended that the Association withdraw from fellowship with Dr. Smith, and that the Secretary be instructed to return his communication. Adopted.

Standing Committees on the several subjects of Medical Science were called upon for reports.

Dr. J. Sites was added to the committee on Obstetrics.

Dr. O. Davis made some remarks upon the subject of superfoetation. Dr. Sites followed, upon difficult and instrumental labor. He reported a case of accouchment, in which the child's head measured twenty-seven inches in circumference. The successful termination of this case (one of his first) led him to think for a time, that instruments might be dispensed with, but he has since looked with much more favor both upon obstetrical instruments and ergot.

Adjourned to 8 1-2 A. M.

WEDNESDAY, 8 1-2 O'CLOCK A. M.

The Association met pursuant to adjournment. Minutes read and approved.

A question arose as to the nature and bearing of a portion of the minutes of proceedings of the last annual meeting at Pittsburgh, which after discussion, was referred to a committee consisting of Drs. C. Newton, Reuben and Skellenger.

Drs. Sites and Davis concluded their remarks upon obstetrics.

A report upon the comparative merits of different systems of practice, by Dr. Z. Freeman, of Cincinnati, was read and referred to committee on publication.

REPORT ON THE COMPARATIVE MERITS OF DIFFERENT MEDICAL SYSTEMS.

BY DR. Z. FREEMAN.

Your committee upon the comparative merits of the different systems of medical practice, beg leave to report, that the results of Allopathic, Hydropathic, and other practices, are not satisfactory to the majority of the thinking community. Homeopathy in this city is slowly upon the wane, and those who were formerly Eclectics in practice, but have since adopted Homeopathy, are losing the confidence of their patrons in consequence of the impotency of the means used for remedial purposes.

Eclecticism is gaining ground rapidly, and our best citizens are adopting it in their families. Its superior efficacy, not

only in the treatment of diseases in general, but in its application to surgery, is securing to it a popularity and reputation which is indeed not only encouraging but enviable.

For the comparative statistics to sustain the above, we refer you to the Committee on Medical Statistics. The above is respectfully submitted to the attention of the National E. M. Convention, in session at Rochester, N. Y.

Z. FREEMAN, M. D.

Cincinnati, May 8th, 1852.

A Report from Drs. Newton and King, of Cincinnati, members of Committee on Dispensatories &c., was read and had the same reference.

REPORT ON DISPENSATORIES, &c.

BY DRS. KING AND NEWTON.

The Committee on Dispensatories, &c., appointed by the U. S. E. M. Convention, beg leave to report, that since the last annual meeting of the Association, there has been issued a work, entitled the "E. M. Dispensatory of the U. S.," by King and Newton, both of whom are members of this committee. The committee are aware that this work is not as perfect as could be desired; but when it is taken into consideration that there were no works upon the subject, and that the mass of information to be placed in a work of the kind, existed in an indefinite and scattered condition, to thoroughly collect and arrange which would require a much longer time than the committee deemed expedient, it will, no doubt, readily be conceded, that the above work is suitable to the present state of the E. M. cause, and will serve as a basis for a more thorough and perfect publication hereafter; and will, therefore, be adopted by Eclectics generally.

Your committee is at present engaged in arranging and collecting material for an improvement upon the work, which, however, will require a few years for its completion. In the mean time, they would solicit from the members of the Convention, and from Eclectics generally, an accurate account

of all new or useful agents, their manner of action upon the systems of those of various temperaments and diatheses, the peculiar symptoms of disease which indicate their employment, as well as those which contraindicate, and the various effects or influences they have on different diseases, and during their various stages. If this matter is promptly attended to as desired, a work can be produced of immense utility to the Eclectic practitioner, and which will rank in point of science with any other of a similar kind extant in medical literature.

The "E. M. Dispensary of the U. S.," above referred to, has now been in print for about seven months, during which time, and notwithstanding its brevity and imperfections, it is eagerly sought after by all classes of practitioners, even by those who have no sympathy with our cause; and we trust that it may become a means of at least inducing a proper investigation of the correctness, and consequent claims, of Eclectic Medical Practice, among those who have heretofore differed from us.

In consideration of the above facts, your committee having in their opinion, complied with the desires of the Convention in relation to this subject, would recommend the above work to the especial attention of the Convention, as being, under the circumstances and difficulties which have presented themselves, suitable to the exigencies of the times, and worthy of their adoption. All of which is respectfully submitted.

JOHN KING, M. D.

R. S. NEWTON, M. D.

Cincinnati, May 8th, 1852.

Reports from Drs. R. S. Newton, (see Report A,) Oldshue, (see Report B,) Armstrong, and Skellenger, (see Report C,) took the same course.

LETTER FROM PROF. R. S. NEWTON.

GENTLEMEN OF THE CONVENTION: An unexpected train of

circumstances has transpired to prevent my being at your gathering, and I may say the same for Prof. Buchanan. I was exceedingly anxious to meet, and become personally acquainted with, my fellow-laborers in the cause of Medical Reform, for I can assure you, that there is no other class of men for whom I feel an attachment so near and so strong, even as I believe there is no other movement in Reform more important than this. Some measure should be adopted by which the value of Medical Reform to every man, could be more deeply impressed upon the public mind. This may and can be done; and once accomplished, we shall have broken down a wall of opposition to our glorious cause, which can never be reared again.

I have neglected, up to the present time, to commence a report on the subject of Surgery, anticipating till the present hour, to be able to lay some new views and suggestions before the Convention in person. It is now too late for more than this hasty sketch.

We wished also to explain fully the motives and policy of our Free School movement, but as this has been prevented, we wish it distinctly understood by all the friends of Eclecticism, that we desire a continuance of the most friendly relations among all Reformers. So far as our late enterprise is concerned, it was not undertaken in a spirit of monopoly, or from a wish to disable or arrest the progress of other Schools, as has been intimated by some of our friends who evidently were unacquainted with our motives or intentions; and we hope that all the friends will so regard our movement. It has been the result of a careful consideration, and the belief that we could render the cause more popular and influential by sending a large number of well-educated Physicians abroad in the land. So far as the experiment has been tested we are sanguine of its succeeding well, and at the same time we are pushing forward our cause and institution. The friends may rest assured that we do not wish any to fall. Thus we

stand ; and we hope to be judged of in this light and in no other.

Yours, truly,

R. S. NEWTON, M. D.

Cincinnati, May, 1852.

The President, by request, gave a very interesting narrative of the relations of the various systems of practice for the last few years, in New England. At the conclusion of his remarks, he presented a paper on the theory and views of those with whom he would wish to co-operate as Eclectic Medical Reformers.

A paper, embracing some peculiar views upon Medical practice and the use of mercurials, was read by Dr. Skellenger, which, together with the papers presented by Dr. Newton, were referred to a special committee, consisting of Drs. Dolley, Potter and Burnham.

Drs. A. K. Eaton, T. Cooke and O. Davis, were appointed a committee on resolutions. This committee did not report for lack of time.

On motion, Drs. Burnham and Potter were added to the committee on Surgery.

On motion of Dr. Potter, Drs. Davis, Newton and Skellenger, were appointed a committee to prepare an address, urging union, organization and harmony, upon medical reformers throughout the United States.

Adjourned to 2 o'clock P. M.

WEDNESDAY AFTERNOON.

The minutes were read and approved.

The Constitutional Committees were appointed, as follows :

Theory and Practice—Drs. Thomas Cooke, I. G. Jones, and P. C. Dolley.

Obstetrics—Drs. Joseph Sites, O. Davis, J. King, S. H. Potter and W. Burnham.

Materia Medica and Therapeutics—Drs. W. W. Hadley, H. Hollenback, L. E. Jones and P. F. Sweet.

Dispensatories and Pharmacy—Drs. J. King, Jas. Brown, H. Hollenback and J. T. Goodin.

Chemistry—Drs. A. K. Eaton, Jas. Brown, J. M. Saunders and E. M. Parritt.

Hydropathy—Drs. O. Davis, C. Newton and L. Reuben.

Medical Statistics—Drs. S. H. Potter, E. S. Preston, T. Cooke and J. Beeman.

Medical Literature and Text Books—Drs. L. C. Dolley, S. H. Potter, I. G. Jones, R. S. Newton, Thomas Cooke, O. Davis and C. Newton.

Comparative Merits of Different Systems of Practice—Drs. Z. Freeman, A. D. Skellenger, C. Newton and P. C. Dolley.

Physical Diagnosis—Drs. R. S. Newton, L. Reuben and I. G. Jones.

Physiology—Drs. J. R. Buchanan, L. Reuben and G. W. Morrow.

Dr. C. Newton, on behalf of the committee on last year's transactions, made the following report, which was received and adopted:—

The committee, to whom was referred the subject introduced by Prof. Potter, report the following resolves as the sense of this Association:

Resolved, That we disapprove of that portion of the proceedings of the last Association in which Prof. Marsh's letter was read, as being calculated, in our judgment, to produce local discord.

Resolved, That while the general sentiment of a resolution passed by the last Convention in regard to the establishment of Medical Colleges, under unfavorable circumstances, is, in our opinion, correct, we disapprove of the expression of any sentiment bearing unfavorably on existing Colleges or Institutions, without a fair opportunity being afforded for the par-

ties implicated to make any explanation or offer any defense ; and we earnestly recommend the adoption of every measure adapted to promote harmony of feeling and union of action.

All which is respectfully submitted.

CALVIN NEWTON, M. D.

J. SITES, M. D.

A. D. SKELLENGER, M. D.

Dr. L. C. Dolley read an interesting report on Surgery. (See Report D.)

Dr. W. Burnham followed with some highly interesting remarks on Surgical Practice. He gave two rare cases of ovarian tumors removed by himself, one of which weighed eight, and the other over forty-two pounds. Voted that Dr. Burnham be requested to present a written copy of his report for publication. (See Report E.)

Dr. Potter, being called upon, made a report upon the peculiar advantages of scientific eclectic, over old school surgical practice, which was ordered to be printed. (See Report F.)

A lengthy and highly interesting paper upon the Forces concerned in the Circulation of the Blood, was read by Dr. Reuben. Referred and ordered to be printed. (See Report G.)

Other reports were handed in, or read, the order of which is not retained.

Dr. L. C. Dolley, chairman of the committee on Eclectic Principles, reported a brief and comprehensive paper, in which we find the following laid down as fundamental doctrines in the faith of the Eclectic school :

1st. To maintain the utmost freedom of thought and investigation, in opposition to the restrictive system heretofore in vogue.

2d. To aid and encourage the cultivation of Medical Science in a liberal and benevolent spirit ; especially in the full development of the resources of the vegetable Materia

Medica, and of the safest, speediest and most efficient methods of treating disease.

3d. To adopt as far as possible in their investigation of disease and remedies, the Baconian or Inductive Philosophy, instead of the Synthetic method of reasoning.

4th. That a departure from the healthy condition of the tissues and organs interrupts the functions of the animal economy, and that the recuperative powers of nature only can effect a restoration. Accordingly, that the object of all medication should be, not to do the work of nature, but to afford her the means of doing her own work, more advantageously, and under circumstances in which she would otherwise fail.

5th. To receive and teach Eclecticism, not as an indiscriminate selection of means supposed to be remedial, but a selection based upon the recognized nature of the disease to be treated, and the character of the agent or agents employed to remove that disease, thus presupposing a knowledge on the part of the physician, at once of the pathology of the disease and the adaptedness of the remedy; and to encourage and urge the highest professional attainments.

6th. To avoid all permanently depressing and disorganizing treatment, the depression of general depletion by the lancet, and to positively reject all medications which experience has shown to be of a dangerous tendency. We believe that the medicines furnished by the Vegetable Kingdom are as a general rule preferable to those of mineral origin. But as this rule is subject to many exceptions, we adopt no exclusive system of herbalism. Nor do we reject any mineral agent unless from the conviction that it produces injurious effects, and that we possess other agents of superior value for the removal of disease.

7th. To dismiss from the catalogue of remedial agents, all those which under the ordinary circumstances of their administration are liable to injure the stamina of the human constitution; more particularly the mineral poisons, such as

mercury, arsenic and antimony, and all of their various preparations, and to substitute in their place, articles derived from the vegetable kingdom, which are not only as powerful in their operation, but far more safe and salutary in their immediate and ultimate effects upon the human system.

The Report was adopted.

On motion of Dr. L. Reuben,

Resolved, That no election of any officer, and no acceptance of any report by this Association, shall be so construed as to recognize, or in any degree to sanction, the use by Eclectic practitioners of any of the mercurial preparations whatever.

A very spirited discussion with respect to the discarding of the use of mercurials in all cases, followed.

Drs. Hadley, Newton, Potter, Davis, Reuben, Skellenger, Burnham, Cooke and Sites, took part. The resolution was finally adopted by nearly a unanimous vote; Drs. Davis and Skellenger voting in the negative.

Application was then made to the Association to hold their next annual meeting at the several cities of Cincinnati, Worcester and Philadelphia.

After considerable discussion, it was determined that the next annual meeting be held in Philadelphia.

The Treasurer's report was read and accepted.

Adjourned to 7 1-2 o'clock P. M.

EVENING SESSION.

Dr. Simms in the Chair. The minutes were read and approved.

The committee on Revision of the Constitution and By-Laws reported.

Drs. J. H. Tilden, O. Davis, Reuben, Cooke and Simms, were appointed a committee to report on the Constitution, &c., at the next annual meeting.

Moved by Dr. Davis and adopted, that a committee of five

be appointed to prepare an address for the next Convention. Drs. C. Newton, Sites, Potter and Buchanan, committee.

Voted that the committee on publication take measures to publish entire, in octavo form, the proceedings and accepted reports.

A resolution was passed, disapproving of the Free Medical movement in Cincinnati, on the ground of its being detrimental to the welfare of other Colleges. Reconsidered and laid on the table. The Convention would not act as censors of the corporate acts of an Eclectic College.

The Convention adjourned to meet at Philadelphia on the 2d Tuesday in May, 1853, at 2 P. M.

C. NEWTON, M. D., President.

L. C. DOLLEY, M. D., }
S. H. POTTER, M. D., } Secretaries.

ADDRESS.

BY O. DAVIS, M. D.

Prof. Davis remarked that an apology was due, as the individual from whom the annual address was expected, has been prevented from favoring us with it, on account of sudden illness, and that the topics embraced within this address, have received but the few moments of attention required in placing them on paper. He then continued :

Members of the National Eclectic Medical Association :

What, let me ask, has drawn us together? What are the objects of this Convention?

My answer may be brief. Do not considerations of public good, bring us together? Is it a topic of less importance than **THE HEALTH OF MAN?** It is not my design to attempt a eulogy upon the science and art that claims our devotions. It is enough that our art is exercised for man's good—even while pregnancy is anticipating birth—that it cares for his infancy, that it alleviates the ills of childhood, and even through manhood and old age, aims to minister to his health and happiness, and under all circumstances, to diminish the ills attendant upon his transitory life.

Man, then, is the subject of our labor and our care. We study his physical formation; we pry into the secrets of his physiology, and we are attempting even to solve the problem of vitality, and the mysterious union of mind with matter; and if we fail in understanding this, we still labor on, studying his intellectual powers and his moral tendencies; as well as the dangers which beset his physical organization.

For *his* benefit, we sit beside the couch of the suffering patient, to learn *symptoms*, the symbols of Pathology. We explore earth for remedies, we search the animal, the vegetable,

and the mineral kingdoms, and sometimes resort to the chemist's laboratory, for combinations which nature does not afford.

We inquire into the causes of disease, and we question all influences, whether in the sky above, or in the earth beneath; whether of growing or decaying substances. We even estimate the effects of light and darkness; of storm and calm; of drought and humidity, and frame a morbid constitution for imponderable agencies! And finally, we meet here to reveal our discoveries, to make known improvements, to advance in theory and practice, and by our united labors and wisdom to contribute to the welfare of mankind. But these are not the sum of our objects.

We convene as a National Association of *Eclectic Physicians*. Perhaps a word in explanation of our name may not be amiss. We may observe in community, that strong preferences and prejudices prevail in reference to different modes of medical practice. Some choose the "similia" in homeopathic doses of Carbo or Lachesis; others the heroism of Allopathy; some prefer exclusive Hydropathy, while the liberal-minded, sick of exclusive claims and pretensions of any system, patronize those whose liberality leads them to acknowledge "good in every thing," while they are zealously laboring to develop a safe and efficient practice.

It is no doubt apparent, that could any single system of practice absorb public confidence and favor, and could it also enjoy the benefits of liberal appropriations from the state, and the protection of law, while others were denied these privileges, the healing art would become a dangerous monopoly. Such is the constitution of the human mind, that self will seek its own aggrandizement. In this State, only one system of medical practice has as yet enjoyed the favor of Legislative aid, and the means by which it seeks to retain exclusive favors, are not praiseworthy. In other States, quite recently, a greater liberality to other systems of practice, begins to prevail.

We do not design to draw unwarrantable distinctions, or assert our superiority in medical practice; but we assert our rights, and claim for ourselves a candid and impartial consideration. The strenuous endeavor of any system, to arrogate to itself all advancement in medical science, is the best evidence of its imbecility and mental blindness. And the best evidence that unworthy and sinister motives governs in its cultivation, is furnished when it makes use of every available influence and agency to defeat the favorable consideration of the claims of rivals, and at the same time asks for greater appropriations.

The issue we make with Allopathy is this; that she is not sufficiently liberal. The differences in practice arise chiefly from differences in opinion, education and experience.

With the progressive, liberal-minded physician, we make no issue. Such, we believe, will seek for the safest and best agencies to heal the sick. At the same time, our opinion may be indulged, that the high-minded physician, while he sees much that is in "bad taste" among Eclectics, discovers also greater independence and self-reliance, and we need not now "wait a little longer" to see that practice realizing the benefits of a working organization of scientific men. We said that Allopathic Physicians betrayed a lack of liberality. It is no palliation in their case, that others are less worthy. Having enjoyed every advantage, (comparatively speaking,) *they* have no right to claim a *favorable contrast*. To attempt to prove this assertion would be a work of supererogation. Even if we needed evidence, it is furnished by their National Association, which adopted resolutions of a very exclusive and sectarian character. If we require proof, let us wait upon our State Legislatures, and meet their influence there. We see them related to nearly every public interest, in medicine, in hospitals, in charitable institutions, in education, and finally, in politics. In short, in every direction we are confronted with a tower of Allopathic strength. And what is

the spirit in which we are opposed? The fact "will out." Here is the truth in a nutshell. The President of the N. Y. State Medical Society, in his annual address of Feb. 6, 1849, (which was published by the gratuity of the State Legislature) says, on page 5, "We claim to be the exclusive depositories of sound medical learning, because we alone seek it as the only true and legitimate sources." If such and similar declarations have been made publicly, and if the acts of their societies and associations, correspond with such sentiments, and general opinion also agrees in this verdict, the evidence cannot be made more satisfactory, nor the conclusions find a more truthful basis.

Neither are we blind to the good existing among our opponents. When we witness such examples of disinterestedness, of Philanthropy, of devotion to science, and to the wants of common humanity as we observe within the ranks of Allopathy; and too, when we witness, through the exertions and influence of physicians, the establishment of Asylums for lunatics, institutions for the instruction of the deaf and dumb, and of the blind, and when we see them leading in Reforms, as Dr. Rush pioneered in the great Temperance Reformation, and at a later day, enlisting such advocates as Dr. Sewall of Washington, Dr. Watts of New York, Dr. Warren of Boston, and Dr. Mussey of Cincinnati; when we learn that most Associations for the promotion of Literature and Science have been formed by medical men; and when we remember that Agriculture, an art second only to medicine, has been improved as much by medical men, and perhaps more, than by any other class, excepting farmers, we are not backward in bestowing deserved praise. While the physician's relation to agriculture, to morality, to temperance, to the fine arts, and to philanthropy, has been highly conducive to the advancement of society; yet contrasted with his usefulness as a physician, restoring the sick, and preserving health, the view is far less favorable. And this only strengthens my argument,

that an art and science of such vital importance to the welfare of society, should be cultivated with care, in a liberal spirit, and every usurpation and monopolizing tendency, should be rooted up. to wither and die on a soil of freedom and intelligence.

Then the object of this organization, in defeating the monopolizing tendencies existing in the profession, is worthy. A more liberal spirit and policy in medical organizations already to some extent exists. Medical science is now cultivated in a more catholic temper by all sects.

While the Eclectic Medical organization contemplated the spread of liberal views, the encouraging of greater freedom of opinion and independence in investigation, it has also endeavored to improve the practice of physic, by substituting as far as practicable, and I may say, as far as possible, sanative medicines for those possessing pathogenetic influences.— Drugs were formerly employed without sufficient consideration as to their ulterior effects upon the human organization. Too many are still used, whose secondary influence is even worse than the disease they were given to counteract.

There are many, in my humble opinion, who think that some kinds of medicine are intrinsically sanative and harmless. With such we have not time to differ, although we cannot agree. More depends upon the state of the body, the conditions of an organ when a remedy is used, and the amount employed, than is generally supposed, when we estimate the character of a remedy. We judge of the character by its effects, and its effects are determined greatly by these several conditions and circumstances. Even oxygen may burn up too freely the carbon of our bodies; and yet without a due share of the warmth so produced, we could not live. But the end we wish to attain, as Reformers in medicine, is certainly being effected. Disease is not now so recklessly treated, and heroic minerals are not employed with such an "abandon." The Lancets are becoming dull, while inflammations, apoplex-

ies, and fevers, are now treated with greater success without a resort to such sanguinary means.

Reformers have accomplished another important end, in calling attention to Hygiene. While the few have been leading the van of the army, and by original research, have been really advancing medical science, the great mass have been diffusing medical truths, and popularizing the study of medicine.

The people will always be the judges of practices and physicians, and when properly enlightened, may judge correctly. Let every individual study his own peculiar physical and moral constitution, his morbid tendencies, the diseases of his climate and locality; let him study what are his own individual wants; let him have a proper regimen in diet, exercise, clothing, bathing, sleeping and thinking, and conform to the wants of his physical system, and he may reasonably calculate on a longer continuance of health and life. To awaken attention on these points, has been peculiarly the work of Reformers in medicine. It has been their especial business to improve the health of society by reforming out abuses. And now, our work is but just begun. There is a wide field open, awaiting for more laborers. The missionary spirit is abroad, and good will result.

Physiology is now popularized. And to whom is the credit chiefly due? Are Eclectic physicians those who discourage this study? Do they fear such influences? or rather, is it not true that they have been the warmest advocates of the movement, and have encouraged the study, not only in our public schools, but have introduced their Journals, intended to interest and instruct the popular reader.

But I wish not to accord too much to the influence of Eclectic physicians. It must be apparent, however to the reflecting individual, that here, and here chiefly, lie their strength and hopes; and that it is by means like these that we have been able to excite the query, "can men drug and doctor their bodies *ad libitum*, and fear no consequences?"

It is through such agencies we have been able to stay heroism in medical practice, and to excite dread of danger, in the unnecessary employment of disease-creating agencies. Our work is not finished. Having already created a demand for medical information, we must supply the proper aliment in its purity and truth. Are we prepared so to do?

Let us next glance at some of the evils which beset Reformers. Is the standard of our attainments in medical science, high or low? Are we improving and elevating it, or are we lowering and degrading it? Are we determined to make science honorable, and its pursuit dignified and ennobling, or will we pursue a wanton course, limiting its study to a few hours or days at most, and then call a dull, lazy student, Doctor of Medicine?

Are we ready and willing to recognize every thing, and every body who has spent a few hours in the lecture room, as an M. D.? If so, farewell to Reforms and Reformers, so far as medical science is concerned. It would be more liberal to give everybody a printed sheep skin, and let every man be his own and his wife's physician!

Another defect among Reformers as regards scientific acquirements, is over-weening self-confidence, which undervalues thorough attainments. There is among us a redundancy of superficial acquirements. There is a plethora of self-esteem, and too many seem to think they know already, more than they can contain. And if they attend upon any medical institution, Anatomy is not practical; Physiology is all theory; Chemistry they cannot understand; Surgery they don't profess; Midwifery they understand, but obstetric instruments are weapons of slaughter, and in Theory and Practice, they are original, and can succeed better than any Professor. But they cannot quite succeed. All that is really lacking, indeed, is a sheep-skin. "Just make me an M. D., and the rest is as easily imagined as described!" Are not such facts too true, and too common?

Now what are we to do? Are these the men, whom we are to call our scientific compeers? Are the Colleges which graduate such acquirements, an honor to the Eclectic cause?

I trust there are none who will knowingly pursue such a shameless policy.

Again, there is a lack of union; unity in interests; unity in action; unity of purposes and aims. Here we might ask, what motives ought to dictate our policy? Whatever they may be, our course of action should be high-minded, unselfish and praise-worthy. If we wish to be students, let us be thorough, persevering and diligent. If teachers, by a thorough and critical education, sustained by experience, we may engage in the work; and if successful instructors, labor where we may in due season, reap a rich reward. Labor to advance the interests of medical science, instead of gratifying selfish ends, at an immense sacrifice. Labor to elevate and dignify, rather than to degrade and dishonor the cause.

I may be indulged in a few words concerning Eclectic Medical Colleges. I will speak frankly and freely, believing that by a free interchange of opinion, we may better understand each other.

The true basis of a Medical College must consist in the character and ability of its teachers. Second and third rate Faculties cannot make first rate Institutions.

There is a choice in the location of a Medical Institution, but the main attraction should consist in its medical teachings. A certain number may be sustained, sufficiently remote from each other. A greater number than can supply this demand, must resort to trumpery, trickery, empiricism and perhaps knavery, to be sustained. I do not refer to any existing college, but rather to a necessity which will grow out of a multiplication of them. Inducements will be held out, either to graduate the unworthy, or to require less time, or lower fees, or to prescribe a "royal road" to practice. Abuses will thus creep in, unless we guard against them.

On this subject we should exercise a sound discretion. We should maintain a healthy sentiment. With correct opinions prevailing, those colleges which resort to empirical and unjustifiable means to secure attendance, which very imperfectly and superficially teach the several branches of medical science, and then graduate a race of sciolists, would decline and finally die. Medical education ought to require years of study, of careful and diligent research. But now, too often is it the case that the profession is imperfectly mastered, simply as an avenue to practice and wealth, a highway to honorable empiricism. And what is the consequence of this policy? Why those who would gladly incur the expense of acquiring sound attainments, find they are not remunerated for so doing. And those who insist on a longer period of study, can only appeal to the honor and professional pride of students, who know really but little of the actual value of scientific attainments, while selfishness urges them to sacrifice honor for filthy lucre.

I believe all our schools should insist on a longer period of study, be more rigid in their examinations, and more uniform in their requirements, and then there would be less of unwholesome competition.

There is evidently, with some colleges, a depreciation in the value of the degree of M. D. Too large a proportion of students in attendance upon the lecture term, not only offer themselves as candidates for the honor, but obtain it.

From accurate statistics, I have been able to gather, concerning Allopathic Medical Colleges, an average of *one third* of those in annual attendance on lectures, obtain the Doctorate. From 1844 to '49 inclusive, in the United States, the total number of students in attendance, was 18,899. Graduates 6,414! According to statistics I find that the Central Medical College has graduated an average of only *one eighth*, nearly 300 per cent less, according to the average attendance. I believe that Worcester Medical Institution can make also

nearly a similar comparison; and it is my opinion that the E. M. College at Cincinnati will not average more than *one sixth*. Here are facts which are altogether in favor of Eclectic Medical Institutions; and yet I candidly believe that they are altogether too lax in their requirements, and it would contribute to their reputation to be still more discriminating in the bestowal of the Degree. For any institution whether old school or Eclectic, to make a trade of selling sheep-skins, is too gross an outrage upon our good sense, to require us to enter a formal disclaimer.

In these matters there should be, not only an understanding, but a spirit of rivalry, who shall stand the highest, and who prove the most honorable to our cause, and to themselves. It would be a happy circumstance if this Association could devise some checks upon wholesale licensing, or if they could so act upon each other, that there could be no pecuniary inducement to confer the degree. Let the value of the degree become greater; and it will, in the *ratio that we advance our professional requirements*. I would suggest that, at our next Annual Convention, we have a Committee on College statistics, which shall lay before the Association the number of students who attend more than 8 weeks upon our Lecture terms, also those who attend the full term, and distinguish from both these classes, those who simply matriculate, and which shall report the number of graduates.

Then this subject would be more fully understood, and there could be greater freedom in interchanging our views.

The Transactions of the American Medical Association of 1849, inform us, that then, there were known to be 38 Allopathic Medical Colleges. I wish to refer to a feature illustrating the laxity in the requirements of students in these colleges. Fourteen of these Institutions do not make dissections obligatory—17 do, and from 6, no returns were made.

So far as I am able to learn, all Eclectic Medical Institutions make dissections imperative before the student can offer

himself as a successful candidate for the degree of Doctor. Yet nearly one half of the colleges of our regular brethren do not make dissections necessary, and besides graduate nearly *one third* of their students yearly. And these are the men who are so excessively pharisaical and intolerant, they will not accept the certificate of an irregular practitioner, no matter how promising are the qualifications of the student! Shall we learn a lesson from such conceited illiberality?

These things should encourage us to be more liberal—more thorough in our requirements, and more rigid in our examinations, and to graduate only those who are critically qualified to sustain a movement of the character we claim for Medical Eclecticism.

There is another feature in our movement, which we will refer to very briefly. It is what has been called "the Free Movement," "Free Education," "Abolishing the Professor's Fees," &c., &c. I am disposed to look favorably on every promising feature, and upon every innovation which seems really calculated to do good. Still I view every subject through my own optics, and judge of what I see, accordingly. The first thought that arises is this; medical teachers cannot subsist on air! They cannot support their physical energies without means.

Then, the money—the fees must come from some source. What is not obtained directly, must be secured indirectly. What is not received in dollars, for Professors tickets, must be made up in the sale of Books, in incidental fees, and in a large attendance. There seems to me to be a spirit connected with this move, though partially concealed, which is odious; a spirit of monopoly, a willingness to live on the wreck of other colleges, and to build upon their ruins. The policy has been carried into execution apparently without consulting the brotherhood of Eclectics. And if the scheme fails, its influence upon our cause is disastrous, because it would prove to mankind their instability and short-sightedness.

I believe its tendency is to invite into our ranks those who

lack energy, decision and genuine abilities. Does it not pander to sloth, and the spirit of beggary?

Does the history of Medical Colleges, in this, or any other country, warrant such a move? Are Medical Institutions self-sustaining? Indeed, can they be?

Take as an illustration some of the Colleges in the Empire State, and I believe they bear in general a favorable comparison with those of other States. Have they been self-sustaining? They have enjoyed the attendance of large classes which have been paying ones. They have also received appropriations from the State. Take as an example, the Medical Department of Geneva College—situated near us, in an inland Village. From 1842, to 1850, inclusive, the State Legislature has given her not less than \$20,000; and now, besides her annual salaries from Professors tickets, with a large attendance, she is actually in debt, and humbly praying for more appropriations. As another example, I will refer to the Albany Medical College. From the same time, ('42 to '50) the Legislature of New York has benevolently given her \$21,000. How much has been received by the College of Physicians and Surgeons of N. Y., or by the Medical Department of N. Y. University, or by the Medical Department of Buffalo University, I am not informed, but probably either directly or indirectly, not smaller sums.

Does this look like being sustained, even when requiring the usual fee for Professors' tickets?

But the true picture is not yet half complete. Even with these munificent gifts, and also the attendance of large paying classes, they are now deeply involved in debt. The College of Physicians and Surgeons of N. Y., formally report to the Regents of the University in 1851, a debt of \$15,000

Geneva Medical College,	400
Med'l Depart. of N. Y. University,	47,000
Med'l Depart. of Buffalo University,	3,000

Making an enormous debt of	\$65,400
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Does it look reasonable that Eclectic Medical Colleges, with average classes, and without the patronage of the State, can abolish the fee of the Professors' tickets, and not decline?

It is a matter which concerns Reformers—a matter in which all are interested—a matter of policy which seeks our approval, or merits no endorsement. The State assumes the fact, when it appropriates large sums of money for the benefit of Colleges, that Medical teaching is not a paying business.

The same is true of other States which have freely patronized Medical Colleges. Nearly all forms of education are fostered and cherished in this way. And now, in the face of these precedents, in the face of such facts, in opposition to past experience, a "free movement" is begun, and solicits the influence and patronage of Reformers. But why term such a move, a Monopoly? Simply, because it appears to us, that selfishness underlies it. That after breaking down rivals, and expending considerable of their own resources, those who adopt this policy, may again resort to Professors' tickets, and a full *quantum* of the *material aid*.

But it may be asked, why do we object to this policy. Because it concerns our interest, and the welfare of our common cause. If this movement does not succeed, and it appears to us it cannot upon its present plan, we are charged with the failure—with vacillation—with experimenting, empirical management—and the decline of confidence will be felt in every circle.

Already the "Free" plan has signally failed of attracting the numbers that were expected; and as yet there are no symptoms which indicate such extravagant out-lays in building, as were foreshadowed in the speculation. When the government or our States respectively, offer us sufficient material aid, then medical education can be made free to all. Without princely fortunes, or rich endowments, such schemes will hardly subsist, although they may contemplate benevolent ends.

While we mutually endeavor to reform the spirit and practices of the profession, let us also remember that we must reform the people. Communities must be improved. The two go hand in hand. Each of us has a personal work to accomplish.

Endeavor to elevate the moral and intellectual condition of the profession, and to raise the standard of education in society.

While we observe abuses, empirical practices, and the like, yet we cannot expect to exercise discipline and censorship. It has been observed, and it is as true of medical as it is of other reforms, that there are some reformers, who are in abundant need of being reformed themselves.

But let us not hinder the progress of our cause by a wrong spirit. Let us be frank, open, speaking fearlessly but candidly, and endeavoring to renovate and improve each other.—Let us be conservative in the measures we adopt, and the policy we pursue. Æolus suffered only the single wind to blow, which was to bear Ulysses to his destination! In our movements, and in our measures, we are naturally radical. Real “Progress moves with calm and solemn footsteps.”

We are apt to manifest a feverish haste. Let me add in conclusion, my sincere hope, that nothing may transpire to mar the harmony of our present union, or that may deter us from an honest and candid performance of our duties. Let this be pre-eminently an occasion for mutual improvement, and mutual enjoyment—a time of mutual confidence and happiness; and from such a scene no discordant quarrels can arise, unless it be within the bosoms of such as do not enjoy meeting with those whose very thoughts devise good to man.

REPORT A.

MEDICAL LITERATURE AND TEXT BOOKS.

The Chairman of the Committee on this subject, having been prevented from making any report, (owing I believe to indisposition,) I take occasion to say, that I have found the E. U. S. Dispensatory to be a work well calculated to fill its place as a Text Book, judging from the favor and attention it has met with at the hands of the Eclectic Profession and Students. The Eclectic Surgery, by B. L. Hill, M. D., still occupies a high position in the opinion of our Profession, and the edition of 2000 copies is now nearly exhausted. Gregory's Chemistry, by Dr. J. M. Sanders, has been received well, but there are unfortunate omissions of portions of the work, which will ever prevent its being generally adopted as a text book in Colleges.

Several other works are in progress of publication, and will be completed during the present year, and we entertain hopes that our friends in the North will assist, by bringing out some standard works, which can be adopted as Text Books.

Prof. Beach's work, in three Vols., is considered a highly valuable one, and one which should be in the hands of every Reformer; yet we fear the high price which is placed upon it will prevent its general introduction.

OUR PERIODICAL LITERATURE.

THE ECLECTIC JOURNAL OF MEDICINE, published at Rochester, N. Y., and edited by Profs. Reuben and Dolley, is a monthly Periodical of 48 pages. Of its circulation I have no means of judging, but hope the information may be supplied.* This Journal is calculated to do its duty well. To me it is

*Its monthly circulation is near 1000 copies.

ever a welcome visiter, and I hope that it may be more extensively circulated.

The AMERICAN JOURNAL OF MEDICINE, published at Syracuse, N. Y., and edited by Prof. S. H. Potter, is a monthly, of 24 pages, with a cover. This is devoted to popular and professional reading. The extent of its circulation, I have not the means of knowing.

The BOSTON JOURNAL OF DOMESTIC MEDICINE, Boston, Mass., edited by B. F. Hatch, M. D., monthly, 32 pages, with cover. The fourth number of this work is now out. It may be hailed by the friends of Eclecticism, as a friend in the cause in the East.

The AMERICAN JOURNAL OF MEDICAL REFORM; for the people and the profession, monthly, 32 pages, New-York, edited by H. W. Sweet, M. D. This work has reached its tenth number, and from all appearances is upon a firm basis. It is doing what it can in the cause of Medical Reform.

* WORCESTER JOURNAL OF MEDICINE; monthly, 32 pages, with cover; edited by Prof. C. Newton, M. D. This Journal may be considered Eclectic, and is well edited and conducted.

The ECLECTIC MEDICAL JOURNAL, Cincinnati, O., 48 pages, with a cover; monthly; edited by Profs. Buchanan and Newton. Has a subscription of 1050.

All of which is respectfully submitted,

R. S. NEWTON, M. D.

Cincinnati, May, 1852.

REPORT B.

OBSTETRICS.

BY L. OLDSHUE, M. D.

To the National Eclectic Medical Association:

GENTLEMEN: I beg leave to submit my humble individual Report upon the responsible branch assigned to the Committee of which I am a member.

During five years' general practice in the city of Pittsburgh, in which time I have treated over five thousand cases of disease, a considerable number of *obstetrical* cases have come under my notice.

Upon a retrospect of these, I find that in no single instance, did I have occasion to use the forceps or any surgical instrument whatever, (save for the division of the umbilical cord,) nor do I believe that labor would have been facilitated by their use, in any instance that came under my notice.

In a majority of the cases I have attended, labor terminated within two hours after my arrival, and in many of them in a much shorter time; and in no case have I seen *true labor* protracted to twelve hours.

I do not pretend to say but that there may be accidental cases—cases of disease and of malformation—wherein labor cannot be accomplished without the use of instruments, but if so, fortunately they have never come under my notice.

I have seen the use of the forceps attempted in two cases by a celebrated accoucheur; cases too, in which labor was pronounced impracticable without them; and in neither in-

stance were they of the least practical benefit whatever. In fact, after many and repeated efforts, their use was abandoned by the accoucheur himself; after which, the *compound tincture of time and Nature*, alone, terminated the labors successfully!

My experience, therefore, prompts a report adverse to the use of instruments, in obstetrics, and especially the Forceps.

A word in relation to protracted labors. These I conceive to be in many cases, occasioned by improper treatment and premature efforts.

I will relate a case in point. A lady near her *term* with the first child, was suddenly seized with pain, from constipation of the bowels, or some such cause.

The Doctor having been previously engaged for the supposed occasion, and being duly summoned, hastened to the house, entered the apartment, and without much examination, or any hesitation, announced the approach or commencement of labor.

A pulling rope was prepared, and he commenced his manipulations, ordering the patient to "hold her breath," "pull the rope," and "bear down."

All these things were done, continued and repeated, for the space of seventy-two hours; the Doctor all the while promising that "another effort," a "long pull and a strong pull," and all would soon be over, &c.

At length, confidence gave way, and counsel was proposed; and at this stage of the matter I was called in.

Upon an examination of the case, I found no dilatation of the *os*, whatever, but only a pressing down of the whole body of the Uterus, after all these efforts, and the manipulations of the Doctor.

An *enema* was ordered, and after evacuations were obtained a sedative was administered; upon the action of which, the patient fell into a tranquil repose, and in six hours, awoke, much refreshed and relieved.

In due time, thereafter, true pains returned, though of a different character, and labor was terminated in six hours.

I mention this case, and hope for the honor of the profession that it is an isolated one.

I fear, however, that a number of reported protracted cases have been of the same kind.

The *green fruit* hangs to the tree with all the tenacity and vigor of life; and it can only be separated by rude blasts, or other mechanical violence.

But when the apple *ripens*, the connecting fibres soften; and a separation from the mother tree takes place spontaneously.

By the same general rule, *Nature* governs the animal kingdom. And if you will but let the fruit *ripen* before you attempt to pluck it, your success will be as certain, as that the apple matured will fall to the ground.

Pittsburgh, Pa., May, 1852.

REPORT C.

MEDICAL STATISTICS.

BY A. D. SKELLENGER, M. D.

To the Committee on "Medical Statistics and Success of the Eclectic Practice," of the National Convention:

In compliance with a resolution of the "*National Eclectic Medical Convention*," passed May 17th, 1849, requiring "that all Eclectic Physicians be requested to forward to the Committee on Medical Statistics, the statistics of their practice during the past year, &c.," I herewith transmit to you an account of all my cases in practice since I located in this place, on the 20th of May last, to the 20th of April, 1852.

NAMES OF DISEASE.	NO. OF CASES.	AVERAGE DURATION OF TREATMENT.	CURED.	DIED.	REMARKS.
Abortion,	2				
Abortion threatened,	2	3 days.	2		Arrested with Hemorrhage.
Ague (masked),	4	6 "	4		
Ague (California, &c.),	1	30 "	1		
Albuminuria,	3	60 "	1		benefited 2
Anæmia,	8	27 "	6		
Amenorrhœa,	3	15 "	3		
Amputation of Finger,	2				
Ascites of 4 years' standing, ...	1	120 "	1		
Aphthæ,	8	3 "	6		benefited 2
Bilious, or Remittent Fever, ...	17	7 "	17		
Bronchitis, Acute	12	5 "	12		
Bronchitis, Chronic,	9	28 "	8		benefited 1
Burns, (severe,)	3	11 "	3		
Catarrhal Fever,	3	7 "	2		benefited 1
Cholera Infantum,	4	8 "	4		
Cholera Morbus,	3	2 "	3		
Congestion of Lungs,	3	4 "	3		
Congestion of Brain,	3	3 "	3		
Congestion of Spine,	1	2 "	1		
Congestion of Stomach,	6	3 "	6		
Congestive or Pernicious Fever, ..	2	10 "	2		
Conjunctivitis, Acute,	12	3 "	12		

NAMES OF DISEASE.	NO. OF CASES.	AVERAGE DURATION OF TREATMENT.	CURED.	DIED.	REMARKS.
Conjunctivitis, Chronic,.....	3	8 days.	2		benefited 1
Constipation,	4	12 "	4		
Curved Spine,.....	1	48 "	1		
Cystirrhœa, Chronic,	3	30 "	3		
Croup,	3	2 visits.	3		
Convulsions, Hysterical,.....	3	1 "	3		
Convulsions, Spasmodic,	4	2 "	4		
Coryza,.....	3	2 "	3		
Cynanche tonsillaris,.....	22	3 "	22		
Cystitis,	1	4 days.	1		
Crusta lactea,.....	2	10 "	2		
Colic, Neuralgic,.....	2	7 "	2		
Colic, Biliary,.....	1	2 "	1		
Debility of old age,.....	4	10 "	4		
Diabetes Mellitus,.....	2	40 "	1		benefited 1
Diarrhœa, Acute,.....	25	2 "	25		
Diarrhœa, Chronic,.....	13	25 "	13		
Diarrhœa, Biliary,.....	2	4 "	3		
Dislocation of Ulna, (carpal,)..	1		1		
Dothinerteritis,	2	30 "	2		
Duodenitis,	2	6 "	2		
Dysentery, Acute,.....	8	6 "	8		
Dysentery, Chronic,.....	1	19 "	1		
Dyspepsia,	6	24 "	4		benefited 2
Eczema,.....	2	14 "	2		
Erysipelas,	5	6 "	5		
Erysipelas phlegmonodes,.....	1	11 "	1		
Exomphalos,	1	12 "	1		
Erythismus Mercurialis,.....	2	6 "	2		
Fractures of clavicle,.....	2		2		
Fractures of ribs,.....	3		3		
Gastritis, sub-acute,.....	5	6 "	5		
Gestation, derangements of,...	24				
Granular degeneration of kidneys,.....	1				benefited 1
Gastrodynia, (Neuralgic,).....	3	12 "	3		
Gonorrhœa, Acute,.....	1	6 "	1		
Gonorrhœa, (secondary,).....	1	36 "	1		
Hepatic Torpor,.....	10	12 "	10		
Hepatic congestion,.....	6	4 "	6		
Herpes,	3	5 "	3		
Hepatitis,	2	7 "	2		
Hectic Fever,.....	2	30 "	2		
Hæmoptysis,	4	2 "	4		
Hypertrophy of Heart,.....	1	40 "			benefited 1
Hysteritis, (or Metritis,).....	2	10 "	2		
Hemorrhoidal Tumors,	5	18 "	4		benefited 1
Induration of Liver,.....	1	20 "	1		
Indur. & Enlargement of Spleen	5	20 "	5		
Indur. & Enlarg. of Cervix Uteri,	1	30 "	1		
Important Surgical Operations,	18		10		
Inflammation of Brain,	1	4 "	1		
Inflammatory Rheumatism,...	2	6 "	2		
Inflammation of Sp'een,.....	8	4 "	8		
Intermittent Fever,.....	80	5 "	60		return'd on 20
Indigestion,	10	3 "	10		

NAMES OF DISEASE.	NO. OF CASES.	AVERAGE DURATION OF TREATMENT.	CURED.	DIED.	REMARKS.
Jaundice,.....	6	4 "	6		
Inflammation of Kidneys,....	3	5 "	3		
Influenza, (Epidemic,).....	13		13		
Itch, (Psora,).....	4		4		
Laryngitis, Chronic,.....	1	20 "			benefited 1
Leucorrhœa,.....	12	30 "	10		improving 2
Lichen,.....	2	8 "	2		
Lithiasis,.....	4	8 "	4		
Lumbrici,.....	23	2 "	23		
Lumbago,.....	2	15 "	1		benefited 1
Meningitis, acute,.....	1	5 "		1!!	
Morbid Dentition,.....	6		6		
Minor Surgical Operations,....	30		30		
Mumps, (Parotitis,).....	13	5 "	13		
Neuralgia, Facial,.....	3	16 "	3		
Neuralgia of Bowels,.....	2	2 "	2		
Neuralgia, Dental,.....	8	2 hours.	8		
Nervous Rheumatism,.....	2	20 days.	2		
Ophthalmia tarsi,.....	2	6 "	2		
Ovaritis,.....	1	4 "	1		
Hydrophthalmia,.....	1		1		
Hydrops articuli,.....	1	48 "	1		
Orchitis, (Parotitis Metas.)....	6	4 "	6		
Pancreatitis, (Parotitis Metas.)	1	30 "			improving 1
Parturition, or Labors,.....	9		9		
Paracentesis, (Maxill.).....	1		1		
Prostatitis,.....	1	10 "	1		
Pneumonia, Typhoid,.....	1	10 "		1	*Had been given up before I was called.
Pneumonia, Acute,.....	4	10 "	4		
Pertussis,.....	4	16 "	4		
Pemphigus,.....	2	8 "	2		
†Peritonitis, <i>et Dysentery</i> ,....	1	7 "		1	†Not my case at first: lived 7 days after given up to die by Doct. Van V.
Pleuritis,.....	5	4 "	5		
Paralysis of Bladder,.....	1	12 "	1		
Phlebitis, (milk leg,).....	1	12 "	1		
Prolapsus Uteri,.....	3	14 "	3		
Plethora,.....	4	Dieted.	4		
Rheumatism, Chronic, and } Anchylosis of Patella,.... }	1	60 "	1		
Scarlatina,.....	2	2 "	2		
Scrofula,.....	4	21 "	4		
Typhoid Fever, (Bilious,).....	3	10 "	3		
Tubercular Phthisis,.....	3	120 "	1		benefited 2
Spinal Irritation,.....	6	25 "	6		
Uterine Hemorrhage,.....	5	2 "	5		
Dysmenorrhea,.....	6	12 "	6		
†Bilious Colic and prostration } by old age, 81 years, and } vomiting,..... }	1	10 hours.		1	†Not my case, cal'd as counsel. Dr. H's case.
	650		576	4	40

P. S. I have treated 651 cases, during eleven months, of of which number I have LOST ONLY ONE! that can

rightly be regarded as my own—the others having either been *given up as hopeless*, or previously and conjointly treated by some other physician beside myself. *And allow me to add, that I have not performed general venesection in A SINGLE CASE.*

A. D. S.

RUGGLES, O., May, 1852.

REPORT D.

SURGERY.

BY L. C. DOLLEY, M. D.

Gentlemen, Members of the National E. M. Association :

It is established beyond a doubt with all impartial and far-seeing minds, that with the organization of the existing Eclectic Colleges in the United States, commenced a new era in the history of medicine. Not that any great amount of valuable hidden knowledge in science, suddenly at this time, unfolded itself, to revolutionize or to greatly modify the old established principles of the curative art. Not that invention in this or collateral branches of science received any sudden or unlooked for impetus,—for research, discovery, and improvement have been highly characteristic of the greater part of the last half century. New remedies, new principles in the application of old remedies; new modes of preparation and concentration of medicines; new and improved apparatus for various kinds of surgical diseases and injuries; new and highly appropriate methods of operating upon and adjusting diseased parts;—in a word, new theories, new isms, and new pathies, have been broached in rapid succession, seized and adopted, evincing both the enterprise and want of stability of the present age.

But during a long interval, important reforms and improvements remained isolated. Each field bore its separate and distinct fruits, which lost much of their worth, because they were not gathered into one great store-house and properly dispensed. This was not because truth has not natural affinities

for, or will not harmonize perfectly with, itself; but because the prejudices and intolerance of the advocates of the various imperfect systems prevented any effort to collect and systematize. Every man cherished a hostility towards his neighbor, creating barriers that operated mightily in retarding the achievements of science. The first efficient weapons against the citadel of exclusiveness and intolerance, have been raised by Eclectics, and with the establishment of institutions advocating no exclusive system,—positively eclectic in their character,—commenced a new epoch in the history of medical science. Great credit is due to the pioneers of this movement, for the able and fearless manner in which they advocated a greater amount of freedom in the choice of remedies more simple and harmless, yet more efficient in their action upon the human organization.

But as valuable, we may say as indispensable, as is liberality of sentiments, for success, it does not, in itself alone, give qualification and capabilities for professional pursuits. It has, unquestionably, given to Eclectics, and their treatment of very many maladies, a degree of success paramount to that of conservative and illiberal practitioners about them. We know that in a majority of diseases, both acute and chronic, the success and the treatment pursued by well informed Eclectics, present a striking contrast with that which has, not without very good reason, been styled "hunkerism." But this success, and this liberality of the new school, has not made them what they should be, and what they may be. It is greatly to be lamented, that with those calling themselves Eclectic, generally, there is a great lack of surgical knowledge.

The practice of surgery in nearly all of its departments, will ever remain a necessary, an indispensable part of the race to eminence and distinction. We do not wish to be understood that every physician must practice all of the intricate and complicated parts of surgery, before he can with justice

claim a dignified or honorable rank among his brethren in the profession ; but that Eclecticism as a system, cannot have the influence, the confidence and good wishes of the advocates of other systems, and many of the intelligent public, until there is a respectable number in its ranks, who either practice the nicer portions of surgery, or promise to distinguish themselves in this direction hereafter. We say the number among those styling themselves Eclectics, who hold themselves in readiness for a large share of surgical practice, is yet vastly too small.

It is already said of us, and perhaps not without some little reason, that "community sees that Eclecticism is not skilled in surgery ; and Eclectics, conscious of it, say they do not do much, because it should not be done." It is, and we may suppose it ever will be, necessary to operate for many cases of cataract, hernia, stone, tumors, and such deformities as strabismus, club-foot, &c. ; yet how many are there among those we choose to acknowledge as Eclectics, who hold themselves in readiness for these operations, and even for operations less difficult, and more common ; as amputations, trephining, ligaturing arteries, &c. To be sure the liberal and progressive ranks in medicine are not wholly destitute of surgeons, and those possessed of a good amount of skill. But such are yet far too few. Eclecticism is proud of herself for what she has achieved in the practice of medicine, in the substitution of safe and efficient, for harsh and heroic measures ; but she will be still much prouder of herself when she can count a goodly number among her votaries, every way skilled in operative surgery. Not, indeed, reckless, unprincipled operators, disposed to resort to instruments in cases where they can be dispensed with, for their own immediate advantage, and the notoriety it may give them. We want more of those who, with a full appreciation of the comforts and feelings of their patients, after relying to a proper extent

upon medicine and regimen for the restoration of diseased parts, are qualified and ready to resort to instruments to save their patients from great deformity or impending death. Why have we not more of these. It is not because surgery is not taught in Eclectic Colleges. It is taught quite as freely as it is in allopathic schools, in the same localities. It is not because our physicians cannot have such practice, when prepared and willing to take it, nor because surgical practice is any way disreputable or unprofitable. The reverse of all of this is true. I have already enumerated the causes. Eclectics, satisfied that they are in advance of the members of the old school profession in liberality, and in success in the treatment of constitutional diseases, have let such achievements satisfy them. They have been contented with agencies of increased value and less hazard, for the cure of hepatitis, pneumonia, dysentery, consumption, dyspepsia, and various other acute and chronic diseases. Because they dreamed that Boerhaaves, Rushes, Cullens, Broussais, and other dignitaries were springing up in the ranks, they cared less for, and labored not to beget also their Coopers, Motts, Velpeaus, and Physicks. Notwithstanding all this, and the almost insuperable prejudices which have existed throughout our country against every thing which assumes the name of reform in medical science, together with the prevalent idea, (kindly fostered by selfish and interested men,) that surgical science cannot be understood and practiced, except by members of the strictly orthodox school, we are gratified in having witnessed during a few years past, a rapid spread of the principles, and a better appreciation of the claims of Eclectic Surgery. The greatest foes all reforms have had to contend with during their infancy have been prejudice, ignorance, and misrepresentation. And we cannot be surprised that the achievements of the Eclectic practice, and particularly in surgery, have been heretofore comparatively limited, when we reflect that the mass of old school physicians, guided by a short-sighted self interest, and

not perceiving that their own advantage would be promoted by every thing which adds to the sum of medical power, have exerted themselves individually, and by combined effort, to delude the well meaning public, by associating our practice with the faulty and very fragmentary systems practiced by exclusive botanics, Thomsonians, root doctors, Indian doctors, and other ignoramuses. There has ever been a labored effort to confound in the public mind a real reform in medicine, based on science and sound principles, with the justly condemned and despised effusions of ignorance and imposition. These obstacles are being fast overcome: light and truth are scattering fast their genial rays. Facts are becoming disseminated among the people; and the various barriers to the advance of medical reform are being removed; and thousands who were its deceived and conscientious opponents, have become its most ardent friends.

It affords us pleasure to observe, that the department of surgery has been favored by the addition to its literature, of several valuable works. The want of suitable text books in this and other departments of Eclectic practice, has long been a subject of complaint. The American Eclectic system of surgery, by Benjamin L. Hill, M. D., is a comprehensive work of 650 pages, written in a bold, fearless, and racy style. Let his present views be what they may, Dr. Hill, in getting up this work, was not deficient in the courage required for his task. He has presented the practical resources of our art, to an extent that will enable the student to understand most subjects pertaining to it, and find the directions a sufficient guide for every day practice. Not only are the measures most peculiar to the Eclectic practice, given in this work, but those most commonly resorted to, receive a sufficient notice. It is with pleasure also that we own our indebtedness to Dr. Wooster Beach, for his revised volume on American surgery. This embodies all that is valuable in his old work, together with much new information, collected by

him during his late travels in Europe. These works must assist much, in diffusing, what we regard as safe, and in many particulars superior, surgical knowledge.

It is a well grounded opinion, that the mass of surgeons have heretofore attached too little value to the curative power of nature in surgical maladies. They have accustomed themselves to take the matter of correcting surgical diseases and injuries, as far as possible, into their own hands, and to operate upon the human frame as though it were a broken cart, or steam engine, or some other inanimate body. It seems that the study heretofore, has been too much to improve the art in its operative department; instead of seeking those measures which may preclude the necessity of operations. Surgeons have loved too well to make a display of their shining instruments; and these have become quite as numerous as those of a wagon shop. In a word, surgeons have been more skilled in *cutting out* and *cutting off*, than in curing up diseased and injured parts. Tumors, fungoid and scirrhus growths, glandular enlargements, etc., have a thousand times been the subject of severe operations, when they would have readily yielded to proper constitutional and local treatment. It is but a short time since it was considered necessary to operate for any compound fracture; and, even now, many of those called our best surgeons, remove without hesitation, such fractures as are attended with much injury of the soft parts. The inutility and folly of this course is becoming well established.— Though there are cases in which, owing to the frailty of the constitution, the extent of the injury, and the danger of gangrene, we must not hesitate to operate; yet the large majority of compound fractures, aided by simple supports and soothing applications, may be intrusted to the powers of nature. The utility of the waterd-ressings in these cases, can only be appreciated by those who have tested them.

The superiority of Eclectic surgery in the treatment of various local affection— such as ulcers, white swellings, hip

disease, fistula, cancer, etc., etc., is becoming more and more fully demonstrated, where the practice is represented by our graduates. White swellings, chronic ulcers, varicose enlargements, etc., belong to a class of diseases which generally baffle the old school practice. In white swellings, if at all severe, amputation has been a common recourse. But this disease has almost uniformly yielded to cupping, fomentations, bandages, stimulants, and derivative applications, when used with proper perseverance, together with baths, suitable alteratives, and other measures of Eclectic treatment.

There is a long list of surgical diseases which my limits will not permit me to enumerate, in which the treatment of the old school fraternity is equally inappropriate. We would however say, that it is all characterized by one uniform feature. It is too arbitrary and mechanical. It is an attempt by bleeding, cutting, and other harsh and severe measures, to march *directly* to the point, "*through thick and thin,*" and to take the business of curing diseased and injured parts entirely out of the hands of Nature, instead of aiding her in the fulfillment of her own infallible indications.

It is a pleasing feature in the progress of surgical science, that the utility of anæsthetic agents is becoming better understood throughout the profession generally. The mania which at first led to their administration in all surgical and parturient cases, without regard to the strength and temperament of the patient, has in a manner subsided; and it is now well settled that, if used under proper care, they are valuable acquisitions to the surgeon and the patient. The article regarded as the safest for anæsthetic purposes, is the common sulphuric ether, purified by water, and inhaled from a sponge, a napkin or inhaler. This produces less artificial excitement, and less irritation in the lungs than chloroform. It should always be administered perfectly pure, free from decomposition, and in a manner that will allow a mixture of atmospheric air. When thus administered, with the discrimination of a prudent surgeon, its worth is invaluable.

Many valuable agents for the treatment of surgical difficulties, as well as instruments and apparatus, which have made their appearance recently, I can scarcely allude to. It would be a matter of pleasure, and perhaps of profit, to discourse at some length upon the claims presented by "Jarvis' Adjuster," and various new splints, etc., for the treatment of fractures and dislocations, of glycerine, and the otophone in the treatment of deafness, and of some recent measures introduced to the notice of the profession, for the treatment of fistulas, hemorrhoids, etc., etc.

Arterial compression, and hæmostasis, as efficient means of combating local inflammation or congestion, and of arresting various species of hemorrhage, are receiving a measure of attention to which they are entitled. In cases of epistaxis, uterine hemorrhage, divided arteries, and other instances which have so often baffled the resources of medicine, a knowledge of hæmostasis enables us to promptly arrest the flow of blood, and retain sufficient for the purposes of life. It is impossible for much of the blood to flow, when we have mechanically imprisoned it in the limbs,—when ligatures have been applied, and the blood vessels of the limbs are *well filled*, the patient may be considered nearly or quite safe. You thus lower the action of the heart, and arteries to that extent, that active hemorrhage from small vessels is impossible.

The attention of our physicians should be invited further to the use of galvanic electricity, in the treatment of various surgical, and other diseases.

We think the real value of this agent has been too generally overlooked by Eclectic physicians. We regret to say, that Hill and Beach have given it but little weight in their valuable works on surgery. It is well known that very many of the diseases of our climate, are more of an asthenic and nervous, than of an inflammatory character. Paralysis, amaurosis, neuralgia, deafness, spinal curvature, indigestion, are a few of the many maladies of this character, which we are

daily called to treat. Galvanism suggests itself as a valuable remedy in these cases. It has long been used, principally by empirical and unskillful hands, in the treatment of various affections of this kind, and has signalized its worth in giving sight to the blind, and hearing to the deaf; in bidding the dumb to speak, and the palsied body to arise and walk. We should not be so unwise as to allow ourselves to deny truths, merely because we have not a clear and full perception of the laws through which they are revealed. It becomes none of us to set ourselves up as the priests of nature, and say, there are no laws by which she performs her offices, but those with which we are familiar. But, in our researches after truth, let us be sufficiently prudent to receive and adopt facts, when they come from such experience and authority, as we cannot refuse to receive on any and every other subject. It hardly seems necessary for us to specify farther, cases in which this agent may be used with decided advantage. Yet, we must ask our physicians, before they yield up protracted and obstinate cases of convulsion, chorea, aphonia, and prolapsus uteri, to avail themselves of this agent, in conjunction with our other valuable resources. Galvanism is said to have magic power in asphyxia, in violent concussions of the brain, and in deadened sensibility, arising from narcotic poisons. Here, as in other instances, in practice, "the life of the unfortunate patient, as well as the hopes of the friends, depend upon the efficiency of the means of him to whom they have confided the case, —and though we may be called to only one in a long life of practice, it is no less our duty and interest to be supplied with the most effective means, to meet the emergency of that case." It is hoped that the above suggestions may at least stimulate inquiry and discussion among those who have met here, from various parts of the country, to promote the interests of our cause; and at least, as expressed by another, that those of a slower mood, may feel their blood quickened, their interest excited, an enthusiasm kindled, and a glow of generous sym-

pathy awakened for each other, in their labors for the best interests of our noble profession.

* * Reports E and F have not been returned to the Committee. If received in time they will appear in a subsequent part of the volume.

REPORT G.

THE CIRCULATION ; ITS PRODUCING FORCES ; AND ITS RELATIONS TO HEALTH.

BY LEVI REUBEN M. D.

" Nothing is perfected—nothing completed, by the labor of one."—COLUMELLA.

SEC. I.—HISTORY OF THE QUESTION.

In the early part of the seventeenth century, WILLIAM HARVEY announced to the world the important doctrine of the circulation of the blood. Vague ideas of the motion of the vital fluid in the veins and heart, seem to have been received long before his time ; but this was not a circulation, that is, *movement through a complete circle*. The blood had been supposed to move outward from the heart, in the veins. How it returned was a matter of difficulty ; for the arteries were held to perform a totally different office, and to be the conduits of a subtle fluid,—the " animal spirits." But in HARVEY'S time, it is related that many were already beginning to entertain obscure notions of the truth, which he soon had the honor of propounding. Thus, as in so many other instances, it would seem that the discoverer did not so much *make* the progress which followed the announcement of the new truth, but seemed rather to have been elected by the Science of his time to herald another step in its advancement. True, he met with much opposition. But as many minds are commonly led to catch at the same time the dawn

of a new discovery, so true has it ever been that when the fortunate discoverer had beheld the full-orbed sun, and declared it risen, the mists floating over the surrounding plain have still blinded the eyes of the great mass of mankind, and raised a large majority in clamorous opposition, alike to the Teacher and his Doctrine.

HARVEY demonstrated the impossibility of an outward flow of blood in the veins, by explaining the direction and action of their valves to be towards the heart. He pointed out the fact that the valves in the heart opened in the same direction—from right to left—and thus showed an arrangement leading to the presumption that the blood continued its flow directly through that organ. But, arrived at the left ventricle of the heart, a fluid so substantial as the blood could not vanish, nor, on account of the valves, could it recede. The aorta, however, furnished a complete outlet at that point; and into this, and through the arteries and minute vessels back to the origin of the small veins, HARVEY traced its course; and he established his position by facts and reasonings which the observations of more than two hundred years have shown to be incontestible.

The action of the heart had been admitted from the earliest times, but evidently misinterpreted. The throbbing or pulsation of that organ was a fact too obvious to be overlooked. The ancients, with that facility of reasoning for which they were remarkable, explained this by ascribing it to a "*pulsific virtue*" in the organ. This philosophy plainly stands on a level with those other notions of Nature's "abhorrence of a vacuum," of motion produced by a "principle of motion," and of life as the result of a "vital principle," that is of a principle of life! DESCARTES supposed a sort of explosion to take place at each pulsation. Others referred this action to the agency of the "animal spirits," the "nervous fluid," and the "soul." HALLER demonstrated the inherent irritability of muscular fibre, and explained the heart's action by

the application of a stimulus to its fibres, either through the blood, or the nervous system. His doctrine relative to the properties of the heart as a muscle, is still received ; although it is yet somewhat doubtful what is the precise nature of the agency by which the muscular power is aroused, and caused to express itself in the act of contraction. Some facts seem to show that, when the hearts' fibres have been once stimulated to contract by the touch of a pointed instrument, or of the blood in the natural process, or by the nervous impulse, a peculiar arrangement of the fibres interlacing with, and attaching to each other, may keep up the alternate contractions and relaxations—the *rhythmical* movements—which follow.

Having discovered the great truth of the circulation, and recognizing the muscular power of the heart, HARVEY came to the conclusion that *the motion of the blood was produced solely by the heart's action*. It was natural that in the enthusiasm of a great discovery he should not pause to weigh every fact, and guard against every possibility of error. But difficulties soon sprung up in the way of this part of the new theory. Phenomena were observed which this hasty generalization did not include ; and with which it could not be made to harmonize. The upward flow of the large mass of blood, constantly returning, no matter what the position of the body, from the parts below the heart, proved especially a stumbling-block in the way of the Harveian physiology of the circulation. There were not wanting, indeed, and are not at the present, those who argue that the force impressed by the heart, aided by the *rebound*, or elastic and contractile spring of the arteries upon the passing jet of the blood, is sufficient to account for its elevation to within the reach of the right auricle. Even the great MAGENDIE says, "It is natural to suppose that the heart, after having forced the blood to the last arterial twigs, continues to make it move into the venous radicles, and even into the veins. Harvey, and a great number of celebrated anatomists, thought so." This opinion will again claim our consideration.

The doctrines of a "*vacuum* produced within the chest during respiration," the "*compression* of the veins by the action of adjacent muscles," the "*pulsation* of the contiguous arteries," and the "*capillary attraction*" of the small vessels, were advanced in turn by succeeding writers. BICHAT supposed the "capillaries alone" to circulate the blood, and this by their power of muscular contraction. This view, however, was soon abandoned; nor do we now discover any good reasons for its adoption, as will better appear when the action of the muscular coat of the arteries and capillaries comes to be considered.

Thus the theory of the circulation was handed down, many points connected with it, still calling forth sharp discussions, while yet the leading features of the subject underwent gradual and important modifications. In this State, Mrs. WILLARD, of Troy, N. Y., well known by her literary labors, found the question of the circulation. Her attention seems to have been strongly directed to this subject, by her observations made during the Cholera season of 1832. As the result of her inquiries, in the year 1846, she put out a little volume entitled, "An Essay on the Motive Powers which produce the Circulation of the Blood." In this she labors to disprove the Harveian doctrine, and to establish a new theory, to which I shall refer by and by, namely that "the chief motive power of the blood is in the lungs."

Meanwhile Prof. DRAPER, of New York city, was engaged in working a rich mine of investigation relative to this important subject; and he has advanced principles which constitute a material accession to our knowledge of the circulation of the blood; principles apparently founded in nature, and destined to be received as fundamental truths. It is a little surprising that Mrs. WILLARD makes no allusion to his new views. They have been essentially adopted by CARPENTER and other eminent Physiologists, and by the former have been included under the term "*capillary power*." By this we are

to understand a power extremely unlike that known as "*capillary attraction*," which is a mere physical process. The power referred to, I shall attempt to analyze and explain.

The excitement consequent on the novelty of Mrs. WIL-
LARD'S position on the great physiological problem had pretty much subsided, when the medical public were taken unawares by a communication from Dr. CARTWRIGHT, of New Orleans, who proclaimed the results of certain experiments instituted on the body of an Alligator, as triumphantly establishing the theory of the former relative to the circulation. Dr. CARTWRIGHT'S letter has again awakened a spirit of investigation and discussion on this question, as a trifling result of which I may characterize the preparation of this essay, and the origination of some trains of thought in it which I claim to be new.

In nearly all the discussions of this subject thus far, we see evidences of a partizan feeling, arrayed for or against the bare, unmodified Harveian theory. The stimulus to effort has too often been but some phase or other of *one-idea-ism*. A single motive power seems always to have occupied the whole mental vision of the controversialist. A few strong facts have been huddled together in support of that, objections to it rebutted, and there the writer almost universally has rested his case. No account has been taken of facts equally well attested, which must have introduced serious modifications of the theory of the moment. Such a course could only lead to conflict, misunderstanding and confusion; and such indeed, all will admit, have been the results.

In the thoughts here submitted, I shall endeavor to pursue a different course. I shall be able to present facts and principles which tend to corroborate most of the conflicting theories of the day. I shall then inquire *whether each of the several Forces concerned in giving motion to the blood has been correctly understood?* And when so understood, to ascertain *what is the relative value of each Force in the production of the one composite result—the CIRCULATION OF THE*

BLOOD? In considering this important topic, I shall even run the risk of being considered tedious, rather than fall into the old error of a too partial, and therefore necessarily fallacious view. It is especially my hope to be able to remove some of the difficulties attending this subject, and to explain the operation of a *new* "motive power" of the blood, heretofore but vaguely hinted at, or incorrectly described.

The facts here adduced, and many of the principles involved, are not claimed as the result of my own observations. For them I am indebted to received authorities. My task has been mainly to collate, compare and analyze; and in but a few instances have I ventured the part of pioneer in the philosophy of life. Only that thought of Columella's has emboldened me to attempt anything in this direction,—"*Nothing is perfected, nothing completed by the industry of one.*" Egyptian pyramids may indeed have been built in a life-time; but a complete truth most likely requires the labor of generations of observers.

What are the FORCES which produce the circulation of the blood? To aid in arriving at an answer to this question, I beg leave to call attention in the first place to the following subordinate inquiry.

SEC. II.—THE ACTION OF THE HEART.

What fact in our possession, if any, go to prove that the *Heart* exerts a force upon the blood in the living vessels? I answer:

1. The Heart, where present, is always a muscular organ. The human heart is a *powerful muscle*. It is not endowed with mere elasticity, as was the india-rubber tube in Mrs. WIL-
LARD's experiments, which could only communicate a movement of pulsation. The heart is highly irritable, and perfectly contractile, and is capable of impressing on any fluid within its cavity a high degree of force. But, more than this, its contractions *must* impress a force on the blood it re-

ceives, and the latter must move with corresponding rapidity until the impulse given has been overcome by impediments to its free motion.

The view that the blood in the aorta moves mainly in consequence of the application of a force *back in the lungs*, and is only "regulated, quickened, and made pulsative" by the heart's beat, is liable to this serious objection, that the current sweeping out from the lungs to the left auricle, is there wholly thrown out of its course, its momentum broken against the valves and sides of the heart, until no one can question that it actually *comes to rest* in the ventricle, by the time that muscle contracts upon it, to drive it onward through the arterial system. The force of a stream, lost by passing into a succession of fooms, would never gather itself up again in the last foom, and throw a jet of water through an upright piece of hose, above a man's head. Yet the latter supposition is a parallel with the former, and fully as reasonable as that. The heart is itself a mechanical obstacle, robbing the blood of its momentum; and therefore, whatever momentum the blood has in the aorta, the heart must impart.

2. The left ventricle, which throws the blood through a much greater extent of vessels than the right, is from *two to four* times as thick as the latter.

3. In healthy persons the left ventricle thickens gradually during the entire period of life; the right remains nearly stationary. What but exercise, *work performed*, gives increased development to a healthy muscle?

4. HALE found that the blood arose by its own momentum in a tube, (not of capillary size,) introduced into the opened aorta and carotids of various domestic animals, to heights varying up to 10 feet. By comparing the calibre of the aorta in these animals and in man, he drew the conclusion that the force with which the blood rushed from the left ventricle, (and most of this as we have seen must be due to the action of the latter,) is sufficient to raise a column of the

same fluid 7 1-2 feet in height, the weight of which should be 4 lbs. 6 oz. POISEUILLE, by the use of the Hæmadynamometer,* obtained very nearly the same result; and the neecalculated the force the heart must exert, if acting alone, to be 13 lbs.

It will here be in place to consider the fact, that a force less than that applied to the blood in the aorta, has resulted in propelling warm water from near the heart, through the capillaries, into the veins. It will naturally be supposed, however, that the motion of a viscid fluid containing myriads of little organized bodies in itself, and these of nearly as great a diameter as the capillaries themselves, must take place with much greater difficulty, even through living capillary vessels, than that of warm water through the same after death. And the facts to be given in the next section seem to show conclusively that such is the case.

SEC. III.—LIMITATION OF THE HEART'S INFLUENCE.

What are the facts, if any, which go to show that the influence of the heart is limited to a part only of the sanguineous circle? and what is the existing limit?

1. POISEUILLE found that the momentum of the blood, which in the commencement of the aorta exceeded 4 lbs., gradually diminished as the instrument was applied farther from the central organ, until in the Radial artery at the wrist it was only 4 *drachms*. Of course it grew still less as it approached the ultimate termination of the small arterial branches in the capillary tubes; and it may fairly be supposed there to come to nothing. As Dr. CARTWRIGHT has well remarked, it is folly to suppose that this force, thus almost or wholly dissipated, can in any way be *re-collected*, and act as an equally great or even greater power in the veins.

We must therefore suppose the capillary structures to be

* An instrument calculated to measure the momentum of the blood.

the extreme limit of the heart's influence. Other important facts sufficiently establish this view. Thus:

2. When an artery is opened near the heart, the blood flows from it in powerful jets. The force of the jet diminishes gradually as the orifice is made farther from the heart, until in branches less than 1-70th of an inch in diameter the jet is feeble, and not interrupted, but uniform in its flow; and in still smaller branches there is no jet, but the blood dribbles away in an even stream. The stroke of the pulse diminishes in a corresponding ratio, and disappears in the small branches. These facts are furnished us by that celebrated experimenter, MAGENDIE.

3. In cases of strangulation, or asphyxia, no matter by what agency produced, the blood stagnates in the small vessels of the lungs; and the heart is utterly unable to force the fluid through to the vessels of the opposite side, and so continue the circulation.

4. So in Inflammation of any organ, no matter if it be the heart itself, or the pericardium, the blood stagnates in the small vessels of the inflamed part, and no efforts of the heart have ever yet been known to force the stagnated fluid along, remove the obstruction, and re-establish the circulation.

5. If the heart's force were sufficient to carry the blood through the capillaries, we have reason to believe that it would cause rupture of these vessels, or infiltration of the surrounding tissues, as we see in Apoplexy and Inflammation.

SEC. IV.—RELATIVE IMPORTANCE OF THE HEART'S ACTION.

What facts, if any, tend to prove that the heart's action is wholly subordinate, and often unnecessary, in producing the circulation of the blood? *

* The terms "Circulation of the Blood" should be defined before we proceed farther. By the Blood, I understand the proper nutritive fluid of an animal body. There may be other fluids in the body of an animal that are more or less nutritive in their character, as the Chyle and Lymph; but such are always

1. In all the class of Radiated animals, including the Sponge, Polypi, Medusa or Jelly-fish, Asterias or Star-fish, and others, there are distinct and regular movements of fluids; and in the higher orders of this class, the Star-fish, Sea-urchin, &c., a system of circulatory vessels is found. None of these animals are possessed of a muscular organ of propulsion.

2. There are as many as 3,000,000 species of insects which have *no heart* at all; yet all have a circulation.

3. About 12,000 species of red-blooded animals, including Fishes, have no arterial heart; and about an equal number, including shellfish, have no venous heart. They have a circulation.

4. The Sturgeon, and some kindred species of fish, are not

secondary to the proper nutritive fluid, and commonly directly drawn from, or poured into it. What, now, is necessary to constitute a circulation of this fluid? In the lowest possible type of animal existence, the animalcule consisting of a solitary cell, there is during the continuance of its life a constant passage of fluid matters into the cell-cavity, and a counter-current of somewhat different fluids outwards. But this does not constitute a circulation. It is a mere topical interchange.

In the simplest Sponge or Polype, however, there exist determinate and regular currents. In other words these have a circulation. For these animals have a fixed and somewhat complex structure, in which the different parts bear different relations to the fluid nutriment which must exist somewhere in their interior. This diversity of relations to a common fluid, is the *final cause* of all circulation; as we shall hereafter see that the diversity of attractions thence arising, constitutes in all cases its earliest and most active *efficient cause*. The circulation of the Sponge may be chiefly external; that of the Polype is internal. In the Star-fish we find the stomach ramifying into every ray of the animal; but it does not come into relation with every portion of the structure. Hence there are many small vessels striking out from the radiating stomach into the surrounding parts, and conveying the nutritive fluid, or blood. Portions of this blood must have a return in some way, either through the porous textures of the animal, or through other vessels. In other animals we meet with a set of perfect arterial vessels, but no veins, the blood finding its way back again to the commencement of the arterial system through the interstices in the soft tissues—the flesh. In the highest orders, there are not only arteries to distribute, but perfect vessels also—veins—to return the blood. What we are to understand, therefore, by a “Circulation of Blood” is simply a regular movement of the proper nutritive fluid within an animal, whether in vessels or not.

Mrs. WILLARD in a late article declares that “there is no animal without lungs;” and in this she must be correct. There is no animal however minute, without some provision for the aeration of its fluids, and the decomposition of its solids. But why does she speak of animals “without a circulatory system?” All animals, except the simplest cellular animalcules, have a circulatory system; although it is true that there are many which have not a complete vascular system.

only destitute of any arterial heart, but their very arteries are immovable cartilaginous tubes fixed in the neighboring parts. In some fishes the aorta is even a bony canal.—(Dr. CARTWRIGHT.) There must be, in these cases, some powerful force or forces concerned in giving motion to the blood, which are not applied by *muscle*.

5. The pulsations of the *dorsal vessel*, or heart-less aorta of insects, have been quoted to show that that vessel takes the place of a central organ. But CARPENTER tells us that these pulsations have in many cases been found to be passive, not the result of contraction and relaxation, but of mere ingress and egress of fluids, from external causes.

6. The aorta of Fishes does not pulsate; and much of their blood passes successively through three sets of minute capillaries before returning to the thin-walled heart of the animal. (So CARPENTER.)

7. In the early embryo of the Mammalia, a circulation of blood begins in the vascular area, before the heart is formed, and long before any connexion has been established with the vessels of the mother. This takes an inward direction, and continues for about a month before the heart can be supposed to be sufficiently matured to take the direction of the current.

8. Of twin Fœtuses, one has been known to spend its entire intra-uterine life without a Heart, each Fœtus being connected only with the placenta, and having no open communication between the termination of their placental vessels.

9. All organized beings, as I have already mentioned, above the simplest animalcules, have a regular circulation; but comparatively few have hearts.

10. Some animals have one or more hearts appended to the lymphatic system—the Saurians, or Lizard tribe, two; the Batrachia, or Frog tribe, four—yet Man, with a more extensive lymphatic system than many of these, has no lymphatic heart.

"But," some one objects, "why any heart, if these be facts?" To regulate and equalize the motion of the blood in the vessels, I answer; and to aid in throwing that fluid from one capillary tissue to the other, when the distance is great, or the circulation should be energetic. It is only in the capillary structures that the blood is of any service to the system. While in the large vessels it is idle.

"Why," asks another, "the tenacity of the heart's contractions, if it be a mere subordinate? Why does it often pulsate regularly even after its removal from the body?" I answer; the heart is a part of a very complex mechanism; one, in which all the parts are nicely adapted to each other. Remove the heart from the body, and as long as it plays at all, it will naturally follow its pre-arranged order, and play consensually with actions which would, in the unimpaired body, be going on at the same time. Tenacity of contraction is as desirable in the heart as a regulator and partial propeller of the blood, as it would be in it as a sole propelling organ.

From all these facts we are compelled to draw the conclusion that the heart in Man, or indeed in any animal, is not the sole agency concerned in the circulation of the blood; and further that it is not even the chief agency employed to produce that result.

SECT. V.—UNIMPORTANT AUXILIARY FORCES.

The suction power, or *vis a fronte* of the heart, has been named as an auxiliary to the propulsive power of that organ in producing the circulation. MAGENDIE who strongly advocated this view, tells us that the ventricles of the heart in dilating, lift a weight of twenty pounds, and force the closed hands open when the organ is grasped. But this force can be of no avail towards the circulation; for at the moment of this expansion the auricles are contracting, and thus the latter cut off the possibility of any effect upon the blood lying back of these. But it is true that the auricles themselves expand

actively and with considerable force. The suction power exerted by these hollow muscles, has been much relied on by all advocates of the exclusive Harveian theory. A single observation, however, made by Dr. ARNOTT, and confirmed by his experiments, sufficiently establishes the fact that if the movement of the blood in the veins is at all aided by this cause, it is in a very slight degree; for he tells us that if suction be applied at one end of a long tube with pliant walls, like the coats of the veins, no acceleration of the motion of any fluid contained in it will occur, owing to the flapping together of the sides of the vessels at no great distance from the point of application of the suction force.

Again, it has been argued that with every act of inspiration a vacuum is formed within the thorax; and that the blood must rush in by the veins to fill it. But if such a vacuum really occurred, it would work disastrously; for it would retard the exit of blood from the chest in the arteries, as forcibly as it aided the ingress of that in the veins. The same objection, too, would lie here, as in the previous case, in respect to the flexibility of the coats of the veins. And again, the pressure of the atmosphere is exerted upon a surface fully as great within the air-cells of the lungs, as that of the entire surface of the body, and being in health as free to flow in and act upon the former as the latter, we may almost conclude that no vacuum is in reality formed, or if otherwise, that there is but a feeble tendency to the formation of such a condition.

By the presence of valves in the veins, the frequent contraction of muscles down upon those vessels, must be rendered effective during exercise, in hastening the return of the blood toward the heart. This, however, is a very variable and uncertain power; and it is often wholly inoperative.

The stroke of the artery upon its accompanying vein, in the pulsation of the former, has been considered an auxiliary to the action of the heart. But the artery is often too far re-

moved from the vein for this effect, the walls of the latter are yielding, and may simply turn aside under the stroke, the pulse-wave in the arteries travels in the wrong direction, and it must be considered as altogether too limited and inefficient in its action to aid materially in propelling the venous blood.

The pressure of the skin, and other tense membranes in a healthy state, upon contiguous veins, was named as an auxiliary force by MAGENDIE. It is plain, however, that this must operate more in the way of a passive support to the vessels, than as an active propelling force. Neither can the pressure of the atmosphere, although some have supposed the contrary, be brought to bear upon the circulation of the blood. The agency of the contractile coat of the arteries and capillaries will be considered hereafter.

SECT. VI.—PROOFS OF THE EXISTENCE OF ORGANIC CIRCULATORY FORCES.

The action of the heart has now been considered ; as have also some of the auxiliary forces concerned in giving motion to the blood. But, in view of the facts already detailed, the conclusion is inevitable, that the heart, even with these aids, could never originate or sustain a *circulation* of that fluid. Supposing only these agencies at work, the complete circulation of the nutritive fluid would be impossible. The animals destitute of a compound heart would have no circulation at all. And the thousands currents, as we have already seen, would necessarily come to a stand in the small vessels, even of the animals possessed of such a heart ; while no efforts of that organ, with its minor aids, could renew the flow and round off the circle. But there are forces which take the blood, where muscular and other mechanical processes leave it, and continue it onward, in a steady, potent stream, to the heart. And it is at once evident that the forces which, acting under marked disadvantages, as any power in the minute and flexible capillaries must do, can still impel the blood through

the remaining half of both the pulmonary and systemic circulations, full into the heart, must be the leading and most important of the circulatory forces. Especially shall we admit this, when we remember, that with an equal or greater length of *returning* vessels, the weight of the contained blood to be impelled, is at all times greater than of that in the arteries; and, while in the erect position, the force of gravity must be, to a much greater degree, antagonized and overcome in the returning, than in the centrifugal half of the vascular circle. This work is accomplished by what may be termed the *Organic Circulatory forces*, because they are all exerted as a part of the course of certain vital or organic processes which take place in the animal system. They are a direct result of many of the actions which are incessantly going on in the organized structure of the living animal. A few of the facts, proving the existence of such forces, will now be named:

1. Animals whose functions generally are most rapidly performed,—in other words, the sum of whose activities is relatively greatest, have invariably the most rapid circulation. “As a means to their activity,” says one, “and not a result of it.” Let us look then at other facts.

2. Many variations occur in the daily rounds of the circulation, in particular localities; a plethora here, a recession there,—and these effects *must depend* on local causes operating *within* the capillary structures.

3. The ascent of the sap in plants is clearly traced to two sets of actions going on in their tissues. The force with which fluids enter, by *endosmosis*, into the minute pores of the spongy rootlets of the vegetable, is found to be sufficient to propel upward the columns of like fluid above. If a grapevine be cut off, and a piece of bladder tied tightly over the fresh-cut end, the latter is soon burst by the force with which far tinier streamlets are entering at the roots; or a column of mercury is raised 40 inches by the same cause! But mere *capillary attraction* never propels fluids beyond the extremities of the

tubes in which it takes place. The second force is that produced by exhalation, or evaporation from the leaves. The cut-off stem of a grape-vine, being set down into a dish of water, soon empties it, if light have access to the leaves; otherwise the water is absorbed in but a trifling degree. This latter would seem to be a physical, yet here, also an organic process.

4. The upward flow of sap in the spring is found to commence at the buds; and a grape-vine, trained into a room kept warm, draws up sap through its roots, and grows through the winter.

5. The circulation of the sap in plants, and more especially of that of the bark, is kept up in a detached piece of a fresh plant, when of course there is no force acting upon the currents, except what exists and acts within the vegetable structures themselves.

6. If a short piece of the branch or stem of a tree, be so cut off, as to leave open at both extremities, one of the vessels circulating the *latex*, or digested sap from the leaves, so long as a certain degree of vitality remains in the wood, the milky liquor will continue to be poured out at the extremity of the tube, which, in the entire tree, was downward, and none of it will recede, or pass by the opposite orifice. Yet there are no valves in these vessels. If moderate heat be applied during the experiment, so as to exalt the vital activities, the flow becomes more rapid; under the operation of moderate cold the motion is retarded. The passage of a smart shock of electricity through the bit of fresh wood, puts a sudden and total stop to the flow of the latex. These facts are highly interesting, and throw much light on the causes producing the circulation of the blood in animals.

7. Currents of fluid may be observed continually entering the smaller orifices of the living sponge, in its watery medium, and these are "ejected in powerful streams" from its larger openings. No mechanical cause for this movement is found.

8. In some of the compound Polypifera, like currents are seen to be produced ; and these are mysteriously reversed in their direction, after every few seconds.

9. The great Portal vessel maintains a rapid circulation in animals having it, between the other chylo-poitetic viscera and the liver. Yet it has no separate organ of impulsion, and is completely cut off by capillary structures, from the possibility of being reached by the momentum of fluids in the arteries or veins. It is an independent off-set from the general circulation ; and its action is self-sustained.

10. The circulation of blood in the web of the frog's foot, is seen under the microscope, to have a general tendency in one direction,—from the arterial to the venous trunks ; yet, at particular points, its flow is subject to many variations, and is sometimes entirely reversed. This fact proves, first, that the momentum of blood in the arteries is lost on reaching this tissue ; secondly, that there are forces *locally* exerted within the tissue, which take up and continue the flow of blood from part to part, extruding that fluid finally into the veins.

11. The blood is found to continue in motion in the capillary tissues of cold-blooded animals for some time, according to Dr. CARTWRIGHT for "several hours," after the occurrence of death of the body as a whole.

12. The secretions sometimes continue to be formed and poured out from the glands after the occurrence of death of the body as a whole. Movement of blood in the small vessels of the glands is necessary to this result.

13. The lacteal vessels take their course almost directly upward, *against* the force of gravity. Yet here we discover no mechanical propulsion, and must suppose the large amount of chyle daily poured into the venous system, to be elevated by the vital process of *chyle-formation* going on in the roots of those vessels. The force thus generated is said to be sufficient to burst the thoracic duct, when that vessel has been ligatured.

14. The strong coats of the urinary bladder, as has been well remarked, may be even burst by the pressure of urine from above, introduced by the kidneys. Now, if the passing off of urine in the kidneys, were merely a quiet process of filtering, it would cease when the bladder and ureters became filled, and no such fatal consequence could result. The rupture of the bladder from pressure generated by the vital processes going on in the kidney, clearly illustrates the importance and strength of the forces produced in the capillary tissues.

15. Dr. CARTWRIGHT tells us, that after the heart of an alligator had been dissected out and removed, the vital processes went on for an hour or more; the animal remained vigorous, capillary circulation, secretion, muscular action, controlled by the will; and, of course, contractility, sensibility, and intelligence, were still manifested. We may suppose, that in such cases, ligatures were applied to the great vessels that were necessarily severed, and that a low degree of circulation from part to part was kept up, by the anastomosis of vessels of less size, not directly leading towards the heart.

In view of facts like these, the author last named, feels compelled to come to the conclusion that there are, independent of the action of the heart, "forces inherent in molecular life," which play an important part in producing the circulation. To this conclusion the candid investigator of facts must come.

SECT. VII.—REVIEW OF MRS. WILLARD'S THEORY.

The necessity of the existence of some such agency or agencies, as those just referred to, was fully realized by Mrs. WILLARD. Upon *data* somewhat analagous to those I have enumerated, she attempted to solve the problem of the circulation. She supposed, (I quote nearly her language,) that "Respiration by heat, produces an expansive power *at the lungs*, and thus becomes the efficient cause of the circulation of the blood;" that the caloric thus evolved "must pass the

thin separating membrane, (*of the air-cells,*) and infuse itself into the blood; that this must expand that fluid; that "*if the blood expands it must move;*" and that "the blood must take" the direction in which the valves of the heart point. I shall take the liberty to examine carefully the reasoning here offered, and the assumed facts on which it is built.

The position is taken by Mrs. WILLARD, and fortified by many arguments throughout her "Treatise," *that the carbon consumed in the body is present in the lungs,—in the air-cells, of course,—AS CARBON; and that there, and not in the blood, its combustion, or union with oxygen takes place.* But this is a supposition altogether incredible, whether considered in the light of physiology or philosophy. Carbon is an *insoluble solid*. For purposes of calorification it is found in the blood, and in the soft tissues of the body. How does this solid leave those situations, and pass bodily through the "thin separating membrane," out into the air-cells? And why should it, when oxygen is a *gas, quite soluble in water or blood*, and may easily pass through the membrane of the air-cells into the blood, or travel in that fluid to the tissues? Indeed, oxygen is found in a free state dissolved in the blood. And again, a correct physiology does not teach us that carbon is commonly, if ever, taken in its uncombined state, as the animal fuel, but in its various organic compounds, as fat, lactic acid, fibrin of muscle, some vegetable acids, etc. And here the difficulty is no less; in fact, the absurdity becomes more palpable. For who ever dreamed of such substances as *fat, fluid lactic and other acids, or broken-down muscle and nerve*, first finding their way out into the lungs before being acted upon by oxygen, and before the decarbonization of the blood can occur? Nor can the ground be taken that the carbon is separated from its associated elements in these compounds, *before* penetrating into the lungs; for we know of no cause of such separation; or rather, we know that in all these cases, combustion goes before decomposition, and is the means to that result.

The supposition, that the burning of carbon, and formation of carbonic acid occur in the lungs, is therefore simply an impossibility. If heat produces in any way the motion of the blood, it does not enter that fluid either *from*, or *principally at*, the lungs. And this truth Dr. CARTWRIGHT and others have begun to perceive; so that they speak, more cautiously, of a force generated "by respiration, *through* the lungs;" and in this, seem to come nearer to the truth. In fact, it is now well known, that oxygen gas passes directly into the circulating blood,—floats dissolved in that fluid,—a part of it at least being in a free state, and combines with carbon, wherever it happens to meet with that material in the current, or leaves the latter, and seizes upon the same element in the solid tissues. Oxygen gas has been found in arterial blood, in the proportion of ten per cent. by bulk; in the venous, five per cent. So, too, carbonic acid gas has been found in the arterial blood, probably much of it free, in the proportion of twenty per cent.; and in the venous blood, twenty-five per cent. Free nitrogen has been found in both, a very small per centage.

Hence Mrs. WILLARD's objection, that gases are absorbed by liquids, "only at a low temperature," is negated by the facts. Or, rather, although heat at the boiling point, expels gases from fluids, we are not to suppose that the heat of the blood necessarily does so completely. But that writer asks, "why," if combustion do not take place mainly in the lungs, "are the vitals warmest?" For the simple reason, that the human body, like all bodies heated above the temperature of the medium they are in, constantly loses heat from the surface, by radiation; and its solid structures being poor conductors, the internal parts retain that agent in greater amount. Even Mrs. WILLARD, near the close of her book, declares that, "in maintaining that the blood receives *caloric at the lungs*, we by no means deny that there is caloric evolved in other parts of the system by chemical change." (Page 152.)

Another fallacy in the theory already alluded to, is this:

that as heat enters the blood at the lungs, it causes that fluid to expand,—the heated portions must rise, and motion be produced; or, as the writer elsewhere expresses it, “*the blood expands, and therefore it must move.*” But, as some one has remarked, “little change of place is admitted in capillary tubes, which allow of the passage of but single blood-corpuscles in succession.” We may safely say, that in so small tubes, there can be no rising of heated particles sufficient to produce any effect. Again, according to this explanation, the bloodvessels should directly ascend from the lungs; and the writer says distinctly, that “expansive power cannot produce a circulation from the starting point downwards.” Yet from some parts of the lungs the stream is downward from the first; and are we to suppose those parts to be useless, or to act upon a principle different from that of the rest of these organs? Or, take the other form of expression: “The blood expands, and therefore it moves.” And how then does it first expand? Can expansion itself take place without motion? Certainly not. Then *motion* is the antecedent, not *expansion*; and instead of expansion proving a cause of circulation, the former is itself simply an effect produced by some mechanical force, in action. What that force is I shall inquire hereafter.

Another remarkable fallacy in Mrs. WILLARD's theory, consists in the supposition that the circulation of the blood takes place substantially *in a vacuum*,—and that, hence, as the temperature of the body is above 72° , all pressure must be removed, and the expansion of fluids must take place with perfect freedom. But, if true, this proves too much. The watery parts of the blood, should not only expand with perfect freedom at its temperature, $99\frac{1}{2}^{\circ}$, but should even become *completely vaporized* and pass off, leaving the vessels as so many dried canals, filled with the wrecks of shriveled corpuscles! But it is impossible that any cavities of the human system, *with yielding walls*, should constitute even the slight-

est approach to a vacuum ; and the truth is, that the blood in the vessels, in all parts of the body, is placed under the full pressure of the atmosphere, or 15 lbs. to the square inch.

But the Treatise on the "Motive Powers of the Blood," has done much good. The reputation, well earned in other fields of literary labor, of the benevolent Authoress, the novelty of the doctrine, and the zeal of its advocacy, have awakened a new and absorbing interest in a subject of great importance. The details of the work under consideration show that the writer barely failed of removing the vail of ignorance, and exposing in their true character and operation, the beautiful play of the combined propelling agencies of the blood. The great error of Mrs. WILLARD's theory, as well as of HARVEY's, seems to be, that it attempts to account for the circulation of the blood, chiefly through the agency of a single force. Hence, it necessarily fails to satisfy, and subjects itself to much criticism and opposition. I shall explain hereafter what share I consider the lungs really take in producing the circulation.

SECT. VIII.—ORGANIC CIRCULATORY FORCES OF THE GENERAL SYSTEM.

I shall next attempt to analyze and elucidate the organic circulatory forces, and shall hope to be able to establish the existence of the following additional "motive powers" of the blood :—

I. A FORCE FROM NUTRITION.

II. A FORCE FROM SECRETION.

III. A FORCE FROM OXIDATION OF TISSUE.

IV. A FORCE FROM RESPIRATION.

V. A FORCE FROM OXIDATION WITHIN THE BLOOD-VESSELS.

We commonly say, that the processes of nutrition and secretion are *vital* in their character,—that of oxidation of tissue, *chemical*. All three of these may certainly be termed

organic processes, from their occurrence as a part of the operations of organized bodies.

The power which these three actions of living bodies exert upon the circulating fluids of the latter, is one of attraction. True, the attraction here existing between atoms in a solid, and atoms in a fluid state, acts through very minute spaces. But the atoms must be themselves vastly more minute; and this is all that is necessary to the principle of motion of fluids occasioned by such attraction. In every instance, the *final cause* of the existing attraction, is a necessity on the part of some of the tissues for some substance present in the blood of the adjacent capillary vessels. The law of attraction we may not clearly comprehend; but we see it impressed by the Creator on all bodies, animate as well as inanimate. Through its operation, wherever there is a *want* in nature, there is a *mutual disposition to approach* also established between the entity in a desiderating, or *minus*, and that in an imparting, or *plus*, condition. The opposites are impelled to meet,—a *marriage elemental* takes place, and Nature's designs are consummated.

That a powerful attraction does exist between the animal solids and fluids, is very evident; for otherwise portions of the latter would never separate themselves from the mass of the blood, pass the porous wall of the capillary tube, and incorporate themselves tenaciously into the fabric of the former. That this attraction must act energetically, and almost, or quite, constantly, on the approaching column of blood in each tube, is equally evident; for that fluid is quite tenacious,—its components having considerably firm adhesion among themselves, so that whatever attracts the single component, fat, fibrin, or free oxygen, must impel the whole fluid, until the particle so drawn, arriving opposite the place of need, is forcibly disjoined from the surrounding substances by the direct strength of the attraction, and carried out of the vessel by pores, through which they have acquired no disposition to pass.

Every structure of the body which is in a growing, or *changing* state, strongly and incessantly attracts the arterial blood delivered by the arteries at the entrance of its own capillary tissue, because that blood contains a surplus of free oxygen, and *because* this gas is demanded in the tissue to accomplish the breaking down of fibre, cell, and so on, that have performed their part in the vital actions, grown old, and become fit only to be cast out from the organism, either for re-assimilation or final excretion. Thus, from millions of little points in the various structures at the same moment, and at every moment, although much more under some circumstances than others, an attractive force goes forth, seizes upon the oxygenated blood, and hurries it onward in its course. It is no objection to this force that it is momentarily being satisfied in every part, for in every part, while life lasts, it is also momentarily renewed. It will readily be perceived, that as soon as any portion of the blood has become completely drained of its free oxygen, or to such an extent drained, as to present a much feebler hold for the attraction within the tissues, it will be hurried along by the continued action of the same force on other portions of the circulating fluid, fully charged with oxygen, and lying back of itself, and so *passively* crowded *towards* and *into* the veins. And thus we have the *modus operandi* of a constant, life-long Power, stationed in the capillary textures, and so operating, as necessarily to pass the blood from the arterial to the venous trunks. This is the force from Oxidation of Tissue.

But again : no sooner has a fibre, or cell, or other minute part become effete, and abandoned its hold on the living tissue,—and no sooner does any such part present itself in a young and growing body, having the power and disposition to enlarge by the superaddition to itself of new material, than at once a new cause of attraction comes into play. The tissue now demands, in millions of minute points, the addition of portions of organizable material,—mostly the fibrin of the

blood,—and hence another similar incessant force, which aids in producing the general result—motion of the blood. Of course the blood which has been robbed of its plastic element ceases to be attracted at the original points, although it may still be drawn toward others, at which there is a demand for some other material found in its composition; and, finally, stripped of its vitalized components, it again becomes passive, and is pushed forward by superior affinities acting behind it, into the veins. And thus we discover, secondly, a force from Nutrition.

The blood, now, in its transit through the tissues has received a supply of effete, or worn-out matters, which, with some of its previous constituents, are suitable only for use in the preparation of bile, urine, saliva, and so on, and it also contains fat. Hence, so soon as it has been propelled into the vicinity of the several glands, or of the adipose tissue, a new attraction reaches out towards it, and communicates again an accelerating impulse. In each of the secernent structures are innumerable little cells, and these, in order to their own development, must attract blood containing the specific matters by which they are, as it were, fed and enlarged. It will be readily seen, that the blood which has thus subserved one secreting structure, may still be eligible for the purposes of another; and hence that this action is constantly going on in a considerable portion of the entire capillary circulation. Thus, then, we discover a force from Secretion.

Let us now consider a few facts tending to establish the existence and operation of the three organic circulatory forces already described.

1. The pulse is sensibly *quickened* during the process of digestion. Why should it not be, when in all the capillaries of the salivary glands, of the stomach, of the liver, of the pancreas, and of the coats of the small intestines, the flow of the blood is accelerated by a more rapid process of oxidation, of nutrition, and of secretion in its various forms. It may be

objected that this increase of rapidity in the circulation is due to the absorption of the digested matters, filling the circulatory vessels. But when we reflect on it, we perceive that the introduction of more material, should in itself constitute a *clog* to the action of vessels, and that it is only through the vital relations existing between the blood and the solids, that any material in that fluid should prove a direct source of motion.

2. During muscular exercise, in the early part of the day, and during the excitement of the passions, the circulation is quickened. The greater rapidity of oxidation and nutrition at such times, either locally, or generally, or both, fully explains these facts.

3. Intense study or thought quickens and largely augments the flow of blood through the brain, especially its anterior portions, and this at the expense of the supply to the body at large; a consequence, plainly, of the spur given to the operations of oxidation and nutrition in that region.

4. When a thumb of either hand is actively inflamed, the radial artery of that arm becomes greatly enlarged. When the uterus and mammary glands enlarge, as they do during gestation, the arteries leading to these organs become enormously enlarged; as do also the spermatic arteries in case of enlargement of the testicle. Now, it is certainly the greater activity of the vital processes, healthy or diseased, which causes the enlargement of the arteries concerned in these several instances. The action of the muscular coat of the arteries can not produce such effects, for that action is contraction, and would diminish the calibre of the vessels. *There must be a potent force in the over-active part, drawing in an unusual supply of blood, compelling the muscular coat of the artery to relax and admit a larger stream, and finally, even occasioning the development of new fibres in the vessel, thus giving it an actually greater calibre.* And hence, too, when the diseased or healthy over-action has subsided, as especially

after the occurrence of parturition, in the case of enlarged uterine arteries, and at the close of lactation in the case of the mammary, the current of blood subsides; the superfluous fibres of the arterial coats may disappear, and the vessel return wholly or in part to its original size. Hence, we see that to enlarge an arterial trunk, we have only to apply a suitable stimulus to the organ or part it supplies. To diminish it temporarily, we apply a stimulus to the middle coat or its nerves.

5. After death of the body as a whole has occurred, the action of the capillary tissues and organs for some time continues; and hence it is, that in ordinary forms of death, even the blood of the last few feebly propelled pulses of the heart, is wholly drawn into or through the capillary structures, and the arteries are left empty. This effect is probably due in part to tonic contraction on the part of the arterial muscular coat; but that this is not the sole or chief cause, is proved by the fact, that the cavities of those vessels are not obliterated, but only lessened. But in death by lightning, concussion, violent and sudden poisons, etc., the vitality of the body as a whole, of the arterial coats, and of the capillary structures, ceases simultaneously; and in such cases the arteries are found full.

6. From what has been already said, we see that the universal fact embodied in the axiom, "*ubi stimulus, ibi fluxus*,"—where there is stimulation there will be a determination (of the blood,)—furnishes also a proof in point.

7. Local gangrene sometimes occurs, especially in old age, and to all appearance spontaneously, the arteries and capillaries of the part remaining completely pervious, up to the time of the change. This occurrence would seem to depend on a direct failure of nutrition, and hence of circulation in the part.

8. Intense cold, long applied, wholly empties the capillaries of the skin. But this result can hardly be entirely due to the contracting agency of the cold, but in part to its effects in

lowering, and finally extinguishing, all the vital actions of the cutaneous capillary tissue, and thus taking off, as it were, for the time, the powers ordinarily drawing the blood into, and through that tissue.

9. Dr. J. Reid has ascertained the remarkable fact that, when the blood was not properly decarbonized in the lungs, it stagnated in the systemic capillaries; and the hæmadynamometer then showed an accumulation of force in the arteries, and less in the veins. This fact bears with great weight upon the question of the influence of the arterial coats in circulating the blood; for here a flooding back in the arteries, and a greater force acting on the current, does not still suffice to push it in any great quantities through the capillaries, because the blood, being in a state unfit for the use of the tissues, is *not attracted by them*. The same fact casts a very clear light on the nature of a force which aids in producing the venous circulation.

10. So, too, torpidity of the actions of the liver, no matter how patulous its capillaries, surely produces congestion of the Portal circle, and of all the textures from which its already venous blood is obtained. The portal circulation is, in fact, clearly maintained *by the process of secretion of bile* taking place in the minute vessels of the lobules of the liver.

11. The circulation in the human embryo is at first confined to minute vessels with no impelling organ; as in many insects. Secondly, a single heart comes into play, and the circulation proceeds on the plan of that of fishes; thirdly, a division of the main cavity into two ventricles takes place, but owing to the communication between the two auricles, and the action of the ductus arteriosus, the circulation has in effect the type seen in the higher reptiles; and, finally, after birth, the double circulation becomes complete, and all the blood is exposed successively to the action of air in the lungs before its retransmission to the system. May not these changes in the type of the circulation, be considered as in no way ac-

cidental, but really necessitated by successive gradations in the activity of the nutritive, and more particularly in that of the decompositive, or oxidative process, in the tissues of the young being?

12. Determinations of blood to any part, and whether in health or disease, generally indicate, not a mechanical power from behind, propelling upon the part, but a vital force from before, attracting into it. Very clearly is this seen in all the phenomenon of active inflammation and fever.

Thus, we discover in the action of the organic forces, another beautiful instance of the simplicity and economy already brought to light in so many of the operations of nature. We arrive at evidences of an arrangement, in accordance with which, the very *wants* of the animal organism are made to impress themselves on surrounding matter, and thus secure their own satisfaction.

It may be supposed that mere *capillary attraction*,—the physical process by which fluids advance in fine tubes in inorganic matter,—has also something to do with the propulsion of the blood through the animal capillary vessels. When we remember, however, that this process can merely fill the fine tubes presented to the fluid, and cannot cause the latter to flow beyond their extremities, we shall see that its agency in the circulation must be slight and subservient.

Endosmosis is another physical process which may act within the capillaries. The blood, as it progresses along a small vessel, has its nature constantly changed by the accession of some substances, and the loss of others. This must produce constant changes in its relations to the walls of the vessel, or rather to the tissues which impress it through those walls; and these changes are constantly from a greater to a less degree of affinity. Now this is the condition necessary to endosmotic movement of the contained fluid; which we may therefore suppose to be in part really impelled in this way.

But we shall not forget that the changes in the nature of the blood here referred to, are themselves the result of the agency of the three organic attractions which, as I have explained, act constantly on the contents of the capillaries. These attractions must exist, as is proved by the results which follow; and they must impel the blood *directly* and *per se*, or they are no attractions. The movement produced by these, is direct and certain; that produced on the principles of endosmosis, if it occurs, is indirect. And, as we must naturally suppose the immediate power of the attraction to be greater than any secondary force generated by the peculiar arrangement of the parts in which the attraction operates, so we must suppose the endosmotic force to be less energetic than, and subservient to, the impulses given by the original affinities.

SECT. IX.—INFLUENCE OF THE MUSCULAR COAT OF VESSELS.

We are now prepared to consider the effects of the muscularity of the vessels themselves. MAGENDIE states that when an arterial twig is completely closed by compression, the blood in the corresponding vein immediately ceases its flow. Granting that this were so, it does not follow that the arterial influence is extended to the blood in the latter vessels. The fact only proves the failure of a *vis a tergo*—a force from behind. But this *vis a tergo* may have its seat in the capillaries, as already explained. And if this be the true account of the case, then we shall see that the blood would not instantaneously cease its flow in the vein, but gradually, as the capillaries emptied themselves, and had nothing left to act on. In fact, the passage of the blood from the point of compression, through into the veins, would occupy a scarcely perceptible space of time, and might easily be overlooked, and MAGENDIE does not tell us that the arterial twig remained full. Nor, according to his own doctrine, could the asserted fact be true; for the cardiac and arterial impulse previously given, should project the blood on without pause into the veins. We are therefore prepared

to give more credit to the testimony of other observers on this point, who inform us that when a *tourniquet* is so closely applied, as to cut off all flow of arterial blood into a limb, the corresponding vein opened below the ligature, bleeds for some time, and quite empties itself.

It is known that the middle coat of the arteries is both elastic and contractile. Elasticity is more perfect in the larger, contractility in the smaller vessels. The application of a pointed instrument, of ammonia, the mineral acids, or electricity, excites in any of them an act of contraction. When an arterial branch is severed or ligatured at some distance from its origin, in a larger vessel, the tonic contraction of the coats of the former, no longer antagonized by the capillary forces, occasions shrinking and gradual obliteration of its entire channel, and this despite the action upon it of the heart and larger vessels. These facts furnish a lucid comment on the comparative unimportance of muscular agencies in producing the circulation. They teach us emphatically *that the HEART and ARTERIES are alike mere servants to the all-important CAPILLARY STRUCTURES.*

POISEUILLE, indeed, proved the force of reactive contraction of the middle arterial coat to exceed that of the pulse-wave in dilating it. But the blood encounters a much greater amount of friction as it passes into the smaller vessels, and such a *renewal* of the propelling power is really necessary to keep the contents on to their destination. But that other discovery of POISEUILLE, that a force capable of elevating four pounds in the aorta, dwindles until it upholds but four drachms at the wrist, puts a quietus upon the idea of muscular propulsion of the blood through the capillaries. Indeed, the facts given in proof of the limitation of the heart's action, are equally conclusive in limiting that of the arteries.

The single coat, or wall, of the capillaries, is now pretty clearly proved to be fibrous and contractile in its character. But CARPENTER assures us that no peristaltic action has ever

been discovered in these vessels. And as that author well remarks, any stimulus that should induce contraction in these vessels, would of course directly diminish their calibre, and impede rather than accelerate the transmission of the blood.

The uses of the contractile coat of the arteries seem to be simply these: First—To resist, yet with a variable tension, according to circumstances, the purely dilating effect of the impulses communicated at the heart: Secondly—To react in the smaller, with an increase of force that may, to some extent, compensate the effects of increased friction. Neither of these uses can pertain to the capillaries, as in them the blood does not pass in waves. The object of a contractile power here, would seem to be to allow of relaxation when a neighboring point of tissue calls for a large supply of blood, without the necessity of that relaxation's remaining permanent,—the vessel growing tense again upon its contents, or even by virtue of its tenacity shrinking almost or quite to emptiness, whenever the tissual attraction which enlarged it, becomes satisfied. In this way it may act as a sort of intermittent mechanical power, and may slightly, aid at times, in producing the capillary circulation. It is the changes here referred to, that account for the ever-varying diameters of these vessels in the web of the frog's foot, as seen under the microscope.

SECT. X.—ORGANIC CIRCULATORY FORCES DEPENDING ON RESPIRATION.

There are still remaining two forms of Circulatory Force, which will be found well worthy of consideration. Of these, both are mainly, though neither entirely, dependent upon the action of the Lungs; as both, in a less degree, act also through the agency of the skin. The first of these, however, for the want of a more convenient term, I have called a Force from Respiration, or Respiratory Force. Let us consider its nature and operation.

The blood in its passage through the capillary structures of the system,—the nervous centres, muscles, membranes, glands, adipose, and areolar tissues, and about and partly within the nervous trunks, bones, cartilages, ligaments and tendons, undergoes many important changes, the *aggregate* of which results in its conversion from the arterial to the venous condition. Among the changes included under this general idea, are the following: a very perceptible diminution in the quantity of oxygen gas present, in a *free* state in the blood; an almost equally great increase in the amount of *free* carbonic acid; a diminished quantity of fibrin; a lowering of the vitality or organizability of the remaining fibrin, rendering it less fit for purposes of nutrition; and the production of the dark, or purple hue, in place of the florid, or scarlet color possessed in the arteries. By what means some of these changes are produced, it must be very obvious; others in the list are more difficult of comprehension, and as yet, perhaps, not satisfactorily explained. Such are the *de-gradation*, if I may so term it, of the highly vitalized arterial fibrin to the poorly organizable product found in the veins, and the change in color of the red corpuscles. According to the late researches of MULDER and others, in Germany, the former change is intimately connected with a loss of oxygen; and undoubtedly the latter must be ascribed to the operation, in some way, of the same cause, together with an increase in the amount of carbonic acid.

The means, by which the blood is elevated in the ascending portion of the venous system, will be considered hereafter. We will suppose it to have reached the heart. From the right ventricle of that organ it is propelled to the termination of the pulmonary artery in the lungs. I say to its termination; and I believe, no farther. For in death by asphyxia, arising from any of the various modes of strangulation, no sooner does the air cease to enter the lungs, than the blood ceases to pass

through their capillaries, and that even before the heart has become affected, and while that organ still labors to perform its accustomed office. We find full confirmation of the view above advanced, in the fact, that in these cases, the blood, arrested in the lungs, floods back upon the heart, enormously distending the pulmonary artery and right ventricle, while the pulmonary veins, left auricle and ventricle, and indeed the entire *left*, or *red-blood* system of vessels, is emptied. If, as some may conjecture, the cause of cessation of the circulation, and of death, lay in the heart, and was produced by the sedative, or paralyzing influence upon the heart's muscular fibre, of the excess of carbonic acid retained in the blood, then both sides of that organ should be found gorged with blood, and it should be the systemic and pulmonary *venous* systems that were also full, and the systemic and pulmonary systems of arteries, and probably also of capillaries, that would be empty. But this, as we have seen, is not the case.

The facts I have above detailed, invariably present themselves in cases of death by hanging, drowning, suffocation, choking, and spasm of the glottis. *The blood ceases its flow in the Lungs.* It is dammed up there, as it were, and floods back, stagnating the whole current. Under such a state of things, the brain and nerves soon lose their power, and the muscular structures cease to act; insensibility, inaction, and death close the scene. Yet the capillaries of the Lungs are *OPEN*. No mechanical impediment to the onward sweep of the life-current exists. And why does it not continue? Because a fluid in these minute capillaries is subjected to an immense amount of friction, under which it immediately loses the last feeble remains of the heart's propulsive power; and, because, when the oxygen of the confined portion of air, found in the Lungs at the moment of strangulation, has been exhausted, no new accessions of *power* are applied upon the spot to over-master friction, and urge the fluid into the pulmonary veins waiting beyond to receive it.

What, then, is the nature of the power generated for this purpose within the Lungs? Of the two Forces here produced, the one to which I have applied the term Respiratory, is clearly a counterpart of the organic forces already described as acting in the systemic capillaries, and is produced by the carrying on of a somewhat similar process. The blood entering the Lungs, contains, relatively, an *excess* of free carbonic acid. The freshly inhaled air in the air-cells, about and between which the capillaries take their course, also contains in effect, an excess of free oxygen. *Gases tend always, like heat, to universal diffusion* or rather, to *mutual solution of each other*. But this tendency is not an idle exhibition of a disposition to rambling and *dissipation*. By the laws of nature, the particles of any gaseous body tolerate the contiguity of, and even attract, *unlike particles*, rather than their like.

Thus, the air in the lungs, and the free carbonic acid gas, of the blood, may be said to have an attraction for each other. So long as respiration is kept up, successive volumes of air will draw off successive volumes of the deleterious compound from the vital fluid. And there is every reason to suppose, that the tendency of the unlike gases thus to intermingle, is really equivalent to the application of a propulsive force to the blood in the capillaries of the lungs. But there is an opposite process going on at the same time, and in the same place, in which the fact of an operative attraction, and a consequent force, is more palpable and unequivocal. The lowered fibrin of the venous blood, and, it may be, the iron or hæmatine of the corpuscles, demand oxygen, and more energetically, owing to the presence of heat. The mere fluid of the blood absorbs the same gas with avidity. Attraction, where it exists, is *mutual*. Oxygen gas in the lungs must also attract the constituents of the blood I have named. And this mutual affinity becomes a "motive power" of the blood.

A striking proof of the principles here advanced, is found in the fact, that after the occurrence of death, neither by

asphyxia, nor *shock*, the pulmonary artery is found emptied; whereas in death by concussion, electricity, or any form of shock in which the organic actions cease suddenly, the pulmonary artery is found to remain, not engorged, as in asphyxia, but simply un-emptied of its blood. But when the pulmonary artery is tied in a living, healthy animal, the blood passes quickly on through the lungs, and the artery is emptied.

I come now to consider the promised new "motive power" of the blood; the power which Mrs. WILLARD incorrectly considers to be "expansion," and which alone, disconnected from all the other organic forces acting upon that fluid, the admirers of the "new theory," have agreed in terming the "chief motive power of the blood." I have already explained that, upon correct principles of reasoning, expansion cannot be a cause of MOTION. In fact, all the motion that can occur upon the application of heat to any fluid substance, antecedes the expansion, and is the cause of it; and when the motion in the case has reached its limits, expansion stops, and there is an end of the matter! Now, that there is a force produced by the application of heat to fluids, (including gases, of course,) there can be no doubt; and it is equally clear that, of that force, we must seek some other explanation than the one above named. To the question of the nature of that force we will now address ourselves.

We will suppose a fire to be suddenly kindled in the open air, at a time when the atmosphere around is in a state of perfect calm. Now, two notable effects will follow immediately as the fire begins to glow and throw out its heat, and will continue to manifest themselves until combustion has wholly ceased. I would call particular attention to the difference between these two effects, because they are very apt to be confounded, and to be spoken of as one. First: Heat, set free among the atmospheric particles, in some way gives rise to a mechanical force, which acts on those particles, and in obedience to the operation of which, they are driven apart,—

caused to separate and stand much more widely from each other; or, as we commonly say, they "repel each other," and the affected volume of air is expanded. And this is *the only mechanical effect the heat produces*. But another effect immediately succeeds,—namely; the heated or expanded portion of the air at once rises. But heat cannot cause a whit more of *ascent*, than it does of *descent*, and of *lateral* expansion. Heat, in producing force and motion, knows no "up," or "down," or "sidewise." It only attaches itself as force to the atoms of the gaseous matter, and propels them forth from each other, thus causing them to stand apart, and equally so in all directions—*up, down, and sidewise*.

Why, then, does heated air rise, in a body, to a higher level in the atmosphere? Because the heated mass, being expanded, contains in a given bulk much less matter, and hence is not so strongly drawn toward the earth by gravitative force, as the dense, unexpanded portions about it. Like the less weight in one of a pair of scales, therefore, it "kicks the beam,"—it goes up. But is this the effect of the action of heat? By no means: it is produced by the action of gravity. From all these considerations, we draw the very important practical conclusion, that heat in some way impresses on the particles of matter, a very unmistakeable, but single, mechanical force, and a force that acts wholly irrespective of mere relative direction. Precisely the same effect of this agent we see in the expansion, softening, and ultimate melting and sublimation of most solid bodies under its application, allowing for the fact, that in this instance the force generated must struggle with, until it may overcome, the antagonistic force of cohesion.

Suppose, now, the heat spoken of, could be generated within a small tube, placed in a horizontal position, both ends of which were open to the atmosphere. A current of air would at once be set up through that tube, either toward one extremity or the other, and would continue to flow in the same direction; heat, not "expansion," being its motive power,—

until some marked change in the relations of the tube to the atmosphere should be produced; as, for instance, a great depression of the extremity through which exit occurred, would reverse the current, and leave it to flow continuously in the opposite direction. Suppose, again, the tube were in a circular form, and closed everywhere from the ingress of fresh air. Now, let heat be generated in a part of the tube, and if there were nothing present to determine motion in one direction more than another, the confined air would expand both ways from the source of heat, and, in the most distant part of the tube would be simply condensed. But, suppose, that by any arrangement whatever, the current of air could be made to take one direction, it would continue in that until some marked disturbing force should be brought to bear on it; and every degree of heat applied would prove efficient in aiding the onward motion.

But, it may be asked, if heat were generated and applied at several points in the course of a tube, through which a current of air was passing, would it all prove effective in the one direction first taken? Undoubtedly it would. Apply the flame of *one* spirit-lamp in the course of an inclined glass tube, and a stream of air will rush out of the extremity that is higher, with a given force. Apply the flame of two such lamps, a few inches apart, and the velocity of the current is increased; and still farther would it be accelerated by the similar application of three, four, ten, or fifty such flames. The addition of a new force of the same kind does not antagonize, but falls in with, and aids all the rest. But let us make one more supposition.

Let us suppose that a *liquid*, instead of a *gaseous body*, is to be propelled; that it is contained within flexible tubes; that these, in some parts of their course, consist of millions of vessels of extremely fine calibre; that all these, no matter how tortuous their course, or how unequal their length, unite wholly in *one large tube, at one point*, towards the middle of their

course, on each side, so as, in effect, to constitute in their aggregate action, but one large circular tube; that heat, instead of being generated at a point in this circle, is set free in the current in every part of its course; but that owing to the envelopment of one-half of this tubular circle, in a poorly conducting medium, like the tissues of the human body, much more heat was retained around and in this half, than around and in the other*; that there were principles involved in the action of this apparatus which determined the direction of the current of fluid; and that the flexible tubes were throughout most of their extent endowed with elasticity, and throughout their whole length with contractility, so that their walls would present a firm resistance along the margins of the streamlets of fluid set in motion within them, and not so yield as to obstruct their course; let us suppose all this I say; and we cannot for a moment dispute, that immediately,—no matter whether this apparatus were placed in a horizontal or perpendicular position, a circulation in a given direction would be set up, and would be maintained, so long as the mechanism endured, and the force of heat was kept applied. And in this picture we have the human circulation without the presence of a heart, or the action of any forces, but the one, mechanical in its nature, furnished by heat.

But we have also good reason to suppose that this circulation would be feeble. It would not accomplish that rapid interchange of fluids between distant parts, which is demanded by the vital processes of warm-blooded animals. But now clothe this system of isolated vessels with their proper investment of human tissues. Let the vital processes, which we have already seen to contain powerful attractions within them—

* The blood in the peripheral vessels, being considerably cooler than that in the vessels of the internal organs, would thus sustain to the latter, the same relation as that of the external cooler atmosphere to the heated body of air within the tube previously mentioned. And this difference of temperatures, in either case, though not a cause of the peculiar motion, or circulation, set up, is at least a favoring condition, and facilitates that result.

selves, play about and upon the current. And because their play needs to be rapid, and is kept up by the very current they help to move,—and because the large tubes near the middle of each half-circulation, have no direct tissual action on the fluid within them, put on at this middle point a powerful muscle, to pass the fluid backward and forward between the vessels in which it receives, and those in which it gives out oxygen gas, and other matters, and now we shall have a vigorous, swift, efficient circulation, fully adequate to the wants of any healthy system, under any normal state of circumstances. And in this picture we see the circulation of the blood as it actually takes place in the higher animals, including Man. Numerous forces act,—some intermittently,—some remittently,—some continuously, upon the single or multiplied streams of blood. Yet, because many forces act, it does not follow that the mechanical power derived from heat is lost among them. In fact, it cannot fail to make its impression; and therefore should not be overlooked. But neither can we well term this the “chief motive power of the blood.” In birds and mammalia, it may be, or it may not be. The data for a correct comparison are not yet in our possession.

What now are the agencies by which the direction of the circulating current is determined? The arrangement of the valves in the heart, at the origin of the aorta and pulmonary artery, and in the veins, all pointing in effect from right to left, must forbid the flow of the blood in the opposite direction, should an effort be made by the current to take that direction. But, with arterialized blood in the *left* vessels, (as we may call the arteries,) and venous blood in the *right*, the organic attractions within the tissues will determine the course of the circulation. Motion must take place from left to right,—from arteries to veins. We may therefore suppose that the relations established between the different parts in the *fœtus* and the blood, upon the ingress of the *materno-fœtal* circulation, is the real and primary determining cause of the direction of

the blood's motion. Of course, the direction given, harmonizes with that made possible by the arrangement of the valves, but the latter is only an incidental, and not a causal condition.

A few proofs will now be submitted of the principles that the union of oxygen with the combustible elements of the blood, takes place through the entire circulation, and that the heat evolved aids in producing motion of the blood.

1. MULLER and BERGMANN introduced frogs into confined portions of pure hydrogen or nitrogen gas, having previously removed by the use of an air-pump all gaseous matters from the lungs and intestines of the animals. They found that these animals continued to expire carbonic acid for an average duration of six hours and a half, and in an average quantity of about one cubic inch, each. We seem to have in this fact a positive proof of the continued formation of carbonic acid by the oxygen introduced into the blood previous to the incarceration of the animal. At the end of about six hours and a half, the quantity of oxygen above named, ceased to increase perceptibly in the artificial atmosphere of the animal; but the latter was still alive.

2. Carbon, or other fuels of the body, as already shown, cannot find their way into the air-cells of the lungs,—nor are they solely, or even chiefly, consumed in their capillaries; for then those organs should be kept at a higher temperature than other equally protected internal organs. This has never been shown to be true, and we have no reason to believe that it is so.

3. Free oxygen is found dissolved in every part of the circulation, more or less; and so of free carbonic acid. In the case of the *foetus* these gases enter and escape through the lungs of the mother.

4. The oily granules which give its characteristic whiteness to the chyle, after being poured into the blood, have not been found to disappear under combustion suddenly, or in any

given part, but gradually and throughout the entire circulation.

5. Diseases attended with increased rapidity of the pulse, have, as a general rule, also a more rapid respiration, and increased heat. This rule includes all sthenic, or active inflammatory and febrile diseases. In low fevers the pulse increases, while the respiration may even diminish, in frequency; but in these cases there is undoubtedly a morbid irritant present in the blood. And thus, it is highly probable, a satisfactory explanation may be given of every apparent exception to the rule laid down. In the latter stages of pulmonary consumption, great heat and excitement of the pulse may exist, while yet the lungs are so far destroyed as to introduce little oxygen into the blood. It is undeniable, however, that a very rapid oxidation in the tissues is going on; and the consuming element must then be introduced through the peculiarly thin, delicate, and sensitive skin found in this stage of the disease.

6. The great CUVIER says, speaking of the animal world: "Each class enjoys the capability of motion, in a degree precisely corresponding with the amount of its respiration." Now although the Naturalist here refers to motion of muscular parts, rather than of the blood, yet the two are probably not so far dissimilar in their source, or destitute of connection, as might at first appear.

7. According to LIEBIG, one ounce of carbon, burned, yields 14.207° of heat. He supposes nearly 14 oz. of carbon to be consumed daily in the system of a healthy adult. This would give 197.000° of heat, daily. This amount of heat would raise 370 lbs. of water, from 32° to 98.3° ,—a moderate temperature for the blood; or vaporize 24 lbs. of water already at blood heat. Supposing 3 lbs. of water to be vaporized daily through the skin and lungs, there would still be left about 14.600° of heat to be expended in the way of radiation and motion. But no account is here made of the large amount of heat produced by the consumption of hydro-

gen, sulphur, and phosphorus. LIEBIG's estimate of the consumption of carbon, is evidently too great for our American people; and Carpenter's standard of 8 oz. may come nearer the truth: but when we remember the superior heat-producing powers of hydrogen, we must admit that this, with the other elements Liebig has left out of the calculation, would fully make good his computation of the amount of this all-important agent, heat, daily set free in the system of a healthy adult. That this vast amount of heat should have no office, but, *for some unknown purpose, to warm the system*, seems incredible. But if the newly discovered law of the *Correlation, or Convertibility of Forces*, be founded in truth, we discover that much of this heat may directly subserve the wants of the system, by furnishing *Mechanical Force* to its fluids and contractile solids. And whether that law be true or not, we see that so much heat cannot by any possibility be set free, without producing motion of movable atoms lying in its way.

Some one has objected that "respiration is not a cause of motion; but motion, of respiration." I answer, motion necessitates respiration, or rather *oxidation*, which is the essential process of the latter, as a condition precedent to its own production. Therefore, respiration is prior. Without it, motion is impossible.

I have said that the skin performs to some extent the same actions as the lungs. I need not dwell long upon this point. In animals which have been covered by a coat of varnish, by way of experiment, the lungs immediately commenced to labor more powerfully; and although this rapid and deep inspiration continued until near the time of the death of the animal, yet its temperature uniformly and gradually sunk, its blood became venous in character, and it died,—evidently of a sort of *cutaneous asphyxia*. Persons burned or scalded so badly, as to destroy a large extent of the cutaneous tissue, sink gradually and die in the same manner, even though fe-

brile excitement may have followed at first the occurrence of the injury. The livid blood in the skin of dead persons, after all signs of a circulation have ceased, grows red by the absorption of oxygen. A limb placed in a confined portion of air, containing no carbonic acid, has thrown out that gas, and diminished the amount of free oxygen present. Hence, we must conclude that, in health, both the Force from Respiration, or the interchange of gases, and that from Combustion, are generated and applied through the agency of the skin, as well as through that of the lungs.

SECT. XI.—OPPOSING VIEWS FARTHER CONSIDERED.

We are now prepared to account for the facts observed by Dr. CARTWRIGHT and others in New Orleans, in the case of apparent death by asphyxia of an *alligator*,—the trachea of which had been exposed and tightly ligatured, thus cutting off all access of air to the blood in the capillaries of the lungs.—As must have been expected, the blood in these organs soon ceased to flow, and the entire circulation came to a stand; the vital actions ceased, and the animal was to all appearance dead. Artificial respiration was commenced some hour, or hour and a half, after the operation of ligaturing the trachea, and by degrees the alligator revived; and sure enough, "*Nil iacus*" was himself again! Dr. C. and his friends concluded to consider this a case of actual resurrection from the dead,—a new creation of vitality where that endowment had been wholly lost,—and saw in it a complete confirmation of Mrs. WILLARD's theory, that the "*chief* motive power of the blood is in the lungs." If Dr. C. did not labor under this error, why does he say in a recent communication, in which he even speaks with less seeming positiveness than heretofore, that the alligator was "*to all appearance somatically and molecularly dead?*" But *organic* or *molecular* life evidently was *not* extinct in the animal experimented on. *Vitality had not gone out completely.* The vital condition still remained,

and needed only the introduction of its appropriate stimuli to renew itself in all its manifestations. *Even the blood could not wholly have stagnated.* Otherwise, no possible manipulations could have restored life. In proof of this position let us consider the following facts :—

1. The alligator is a cold-blooded animal. Its vital processes consequently go on but sluggishly at all times, and the animal bears the absence of the natural stimuli, and the consequent dormant and non-declarative condition of its vitality, vastly better than the warm-blooded.

2. Human beings, in whom the processes of life are so delicate, and its conditions so easily abnegated, have been perfectly restored to life, and chiefly by artificial respiration, after the lapse of one-half or three-quarters of an hour from the occurrence of strangulation. From no accounts that have been published, do we learn that the cold-blooded "Saurian" of the Mississippi had been asphyxiated over twice that length of time.

"But," it may be asked, "if there are so many moving powers of the blood, and if the force produced *through* (not *in*) the lungs by heat, is not the chief of these, why then is the circulation so completely brought to a stand in the lungs in cases of strangulation; and why can it not then be renewed in any way except through those organs? This is a natural inquiry, but it is easily answered. First,—Because all the blood of the system in warm-blooded animals, must pass through the lungs; and hence, if the stream be checked here, it must cease through its whole extent, nor can again materially advance, unless the cause of retardation here, be removed. Secondly,—Because the Forces acting elsewhere in the system are not competent to the double task of propelling the blood to the lungs, and then through their capillaries. The Force from Respiration has failed, and that from Combustion is already failing in the left half of the circulation.—The remnant of the latter force acting in the right, or dark-

blood half, is not capable of performing the labor of both these Forces when in their full exercise. But if, before the circulation has wholly ceased, well oxygenated air be again freely admitted into the lungs, both these forces begin again to be generated; gradually faster and faster the blood-corpuscles wheel off from the lungs under the double impulsion, engorgement is removed, and the circulation and life are re-established. But suppose the circulation to have apparently fully ceased. Still, if the molecules, or organic atoms, have not wholly lost their capability of life in any of the tissues, even though in the human subject an hour may have intervened, the circulation will not actually and wholly have ceased. Molecular life will keep up a degree of molecular attraction. And if the needful conditions, oxygen gas, and the requisite degree of warmth to induce the beginnings of combustion, be supplied, calorification, motion, life,* must be the result. In kindling a fire, all know well the difference between the susceptibilities of fuel placed on a bed of hot ashes, or on a cold hearth. There must not only be oxygen; there must be heat, or the first carbonaceous atom cannot be consumed. Its consumption will then generate heat for the next, and more, and so the process is soon self-sufficient. Now, through the action of these principles, the "spark of life" almost gone out into a blackened, lifeless coal, may be fanned again to a full, brilliant flame; and those who look on in wonder may proclaim the work a new creation or a miracle. But it is no such thing. Nor, when no such impediment has been presented to the blood, and that fluid is in full course through the vessels, have we any reason to believe that the force which may have to restore its motion, is necessarily the chief cause of its motion.

Thus we see that it is not the supreme importance of the Combustive Force that accounts for the stoppage and starting

* Vitality is a condition; life, a manifestation. The former may remain after the latter has ceased. The latter may be re-established; the former never can be.

off of the blood in the lungs, but the mere ACCIDENT OF POSITION. It is because in the lungs the fewest forces work ; and no distant powers can come to their assistance. Nutritive force in the lungs is low : cut off, therefore, the respiratory and combustive forces, and motion is hopeless. Just so, in syncope, the heart from the mere accident position, becomes a means of insuring death. Let the heart once become paralyzed under a shock which will prevent wholly its resuming action for a given space of time, and life must cease ; not, indeed, because the power thus placed in check is the chief of all the powers moving the blood, but because from the place of its location, now lying like a fallen tree across the vital stream, it becomes a complete mechanical obstacle to that stream, and in spite of the action of all other Forces, cuts it off until its renewed flow is impossible. But could we, by the briefest space of time anticipate the fatal termination, and induce the palsied fibres of the heart to renew their accustomed actions, all the other Forces would become effective through the operation of this one, and life would again be restored.

We are informed that at the time of the experiment detailed by Dr. CARTWRIGHT, "it was a subject of some merriment, that to kill an alligator, cutting his head off, his heart and lungs out, and probing his spinal marrow, were of little use ; but a few minutes choking were effectual !" Philosophically considered, the result could be no otherwise in either case. Cutting the animal's head off, and its "heart and lungs out," would let oxygen freely into the vessels, and keep up molecular actions, and] probably some of a somatic character, until all vitality departed for want of completeness in the vital operations ; but such action would hardly, in this case, continue by means of a force generated, either "in," or through, "the lungs !"

In a recent article on the Circulation, Mrs. WILLARD makes use of the following argument in support of her theory of that process : "That only can be a cause," she says, "which

is an invariable antecedent. Respiration is the only invariable antecedent of circulation." I have two faults to find with this reasoning. The first is, that in fact "a cause" need not be an "invariable antecedent" of a given effect. For there may be collateral or interchangeable causes of the same effect, and while this is following the action of one cause, another, equally a cause, may not stand in the slightest degree as its antecedent. Secondly,—Even if respiration were the "invariable antecedent" of circulation, which is doubtful, it is by no means the earliest existing antecedent, for that is Nutrition, nor is it under all circumstances the most efficient motific agency in operation; for that, during embryonic and foetal life, certainly, and probably also through infancy and childhood, is also Nutrition!

The writer last named, also states that, "on the supposition of a power being begun in the lungs, by the infant's first breathing, two things are accomplished; one in front, and the other in the rear of the moving force; and that in the rear of this first starting of the vital tide, must, of necessity, be performed first, for the blood must be obtained from the right ventricle, and that, too, by changing the current, before it can be sent to the left; and of course it is not a driving, but a drawing force, which effects this." Are we to understand the writer as claiming that any force can act "in the rear" of itself? Or can we for a moment admit that an "expansive," mechanical, propulsive power, is a power capable at the same time of attraction—of "drawing?" Here is evidently a dawning consciousness of facts and principles, which require broader ground than that assumed in the doctrine of the "chief motive power." But no philosophy will save the latter. A force can by no possibility both propel before, and attract behind itself, at the same time. The two operations are fundamentally different, and require diverse agencies for their performance.

But, according to the theory I have just advanced, two un-

like agencies are really at work. The Force from respiration, or the interchange of gases, is one of attraction, and reaches back into the approaching current. It is this, that upon the occurrence of the first inspiration in the infant, draws the blood in larger, and still larger quantities into the lungs, until the hitherto useless pulmonary artery becomes distended to its full calibre, and admits a sufficient supply of the vital fluid. As a consequence of this new direction, the contraction of the right ventricle becomes effective through that artery, and there being no countervailing attraction near enough to its farther extremity, to keep up the former flow through the Ductus Arteriosus, that vessel necessarily shrinks and is obliterated. Meanwhile the force from combustion, which is propulsive in its character, being now mainly fed through the lungs, and not through the placenta, as formerly, the blood begins to wheel off in the pulmonary veins with increased velocity, and its relatively greater pressure becomes the means of closing the valve of the foramen ovale, which adheres, and permanently divides the auricles. The cessation of the influx of blood through the umbilical vein, allows the ductus venosus also to close; and the proper Mammalian circulation is established.

SECT. XII.—PROPULSION OF THE VENOUS BLOOD: GENERAL REMARKS.

Dr. CARTWRIGHT, in a late communication, tells us, "The chief motive power of the red blood must, of necessity, be located in the commencement of the system of vessels circulating the red blood, which is in the lungs; and that motive power, whatever it be, is derived from respiration." Until this blood has in effect come to rest in the cavities of the left heart, the doctor's view undoubtedly holds good; but he seems to forget that a greater power "must, of necessity, be located at the commencement of the system of vessels circulating" the dark blood. These commence in the systemic tis-

sues; and I beg leave to repeat, that the forces here applied afresh, are those generated in the processes of Nutrition, Oxidation and Secretion. If it be true that the "capacity for heat," as it is vaguely termed, of the arterial blood is greater than that of the venous, the liberation of that agent, during the transformation of the former to the latter, must aid, to some extent in producing movement of the blood; but we have no reason to believe that this cause operates in a very great degree.

But have we any means, it may be asked, of determining the amount of Force generated in the capillary structures? The Force produced in the rootlets of the growing plant, has been mentioned, as also its power of rupturing animal membrane, and elevating mercury, a liquid much heavier than the blood, 40 inches, or $3\frac{1}{2}$ feet, in an open tube. But this force arises from a physical process, Endosmosis. The action of the kidneys in rupturing the Bladder is partly a vital and partly a physical process. The action of the Lacteal vessels in rupturing the Thoracic duct, is purely a vital process. Here, we have a proof, of what, in fact, we could not doubt, that the vital processes going on in capillary structures produce a force as great as that originating in physical actions. And none can object that the introduction of a fluid *into* lacteal vessels should produce a greater force than the passage of a similar fluid *through* the tissues, especially the Brain and Muscles, in which Nutrition is going on very rapidly, and in which Decomposition is alternately generating an additional force which probably is equally great.

In a case, therefore, in which the plant projects a column of Mercury upward three and a third feet, the vital circulatory forces in Man should certainly project a lighter fluid, the blood, from the lower extremity up to the Heart. Especially should this be so when we consider the aid these forces derive from the agency of heat, which increases as the blood passes onward toward the heart. HALE found the momentum of the

blood in the veins to be but *one twelfth* as great as of that in the arteries. This difference is no greater than we should expect, when we remember the lack in the former, of any marked muscular impulse, the fact of the great increase in bulk of the sanguineous stream in them, and the opposing force of gravity.

In proof of the marked influence of the organic forces over the venous circulation, the following facts may be mentioned. If a ligature be tied tightly about the inferior Cava, anywhere near to the heart, the portion of the vein below the ligature becomes greatly distended, no matter what may be the position of the animal. If the distended portion be ruptured, blood flows through the opening with great force; and unless the process is checked, the animal soon bleeds to death.

The valves of the veins are not auxiliary in producing motion of the blood. They seem in the ascending veins to stand as so many *rests* which divide the venous column, and prevent the exertion of its entire downward pressure at any time upon the comparatively delicate and fragile capillaries. In all veins in which they are found, they prevent the reflux of blood under muscular compression, and thus indirectly aid in forwarding the current.

A striking corroboration of the power of the capillary tissues to propel fluids contained in their small vessels, is seen in the instance of *depending branches* of trees. The nutritive sap, or *latex*, from which the external ring of new wood is annually produced, circulates from the leaves towards the roots of the tree, taking its course through the inner soft bark, and being contained, according to GRAY, in vessels of 1-1400 of an inch in diameter, or nearly double the average of the capillary tubes in man. Yet in the depending branch the course of this sap is upward, against the force of gravity; and this course it pursues without hindrance, as is proved by the regular growth of the new layer upon the branch, as well as upon the tree at large.

It may be worth while here to bestow a thought upon the relative importance of the force of the Heart among the various forces of the circulation. Evidently, this organ holds but a subordinate place. But to what is it subordinate? I answer, not to the *function of Respiration*, for its action is equally required, in animals of comparatively large size, as a means to the energetic performance of Nutrition or Secretion. Neither is it an appurtenance to *Respiratory Organs*, merely as such; for those animals which have no heart, have still an apparatus equivalent to the Lungs, for aerating the blood. But we meet in CARPENTER'S Human Physiology, with the statement of a principle which is full of significance on this point, although that author does not seem to have pushed the deduction to its legitimate extent. He says, "It is in those *Articulata*, in which there is a provision for respiration *throughout the whole structure*, as is especially the case in insects, that the absence of any central impulsive organ is most remarkable." In insects, branches of the Trachea penetrate to every part of the system, so that, in every part, the tissues, the blood, and the air, are brought in direct relation with each other. Their circulation is accordingly slow; and, as already remarked, they are destitute of a heart.

Are we not to conclude, in view of these facts, that the Heart is an appendage rendered necessary by the presence of a localized Pulmonary organ? I doubt whether a heart will be found in any animal not possessed of local lungs. I apprehend too, that in proportion as this organ becomes more thoroughly localized, providing at the same time the activity of the animal and organic functions be high, the heart will present a more perfect development, and greater muscular power. And this view harmonizes with the fact that the latter organ is generally, if not always, found in close proximity with the former.

I flatter myself, now, that I have, in the preceding pages, established the existence, and thrown some light upon the

operation of the following propelling forces of the blood : namely,—

1. An organic force, derived from nutrition, or **NUTRITIVE FORCE**, and applied probably, to some extent in all the capillaries, but in the highest degree in those of parts rapidly undergoing growth or reparation, and at all times,—in the lowest degree, in the lungs, glands, adipose tissue, bones, teeth, ligaments, and cartilages. This force is also higher, up to mature age, lower afterward; higher in health, lower in disease.

2. A chemical force derived from oxidation of tissues, or **DECOMPOSITIVE FORCE**, which commences with the first *breaking-down* of cells in the ovum, or in the embryo. This force, whether first exerted in the ovum, or embryo, evidently follows that of nutrition, and is subsequent to the latter, in its first appearance. For no tissue can break down until it has first had both its periods of formation, and of activity. Both the Nutritive and Decompositive forces evidently act before there is a regular system of vessels in which a circulation can be established. But so soon as vessels appear, these forces become effective in producing a movement of the fluid contained in them. Now the heart is at first but a tube, pouching or bagging in its center; and the *omphalo-meseraic* artery and vein ramify upon the *umbilical vesicle* before the muscular power of the heart can be supposed to exert any control over their circulating fluids. What now are the forces which produce motion of the fluid in these primitive vessels, at the early stage of being, referred to. Not any impulse or agency derived from the maternal blood, for the vessels of the umbilical cord and placenta, (so **VELPEAU**,) “are not developed until after the third week, and then gradually.” Nor can we believe the heart to be a sufficiently developed muscle, to accomplish that end. Nutrition and oxidation must be the agencies concerned.

But, says one, Dr. Cartwright has, only orally as yet, expressed the opinion that “the placenta is the respiratory organ

of the Fœtus." No matter: others have *written* it long since. It was the opinion of LOBSTEIN, MECKEL, and MULLER, and is that also of VELPEAU. It is undoubtedly correct,—after the placenta is formed. But at the early period I have been speaking of, it is quite probable,—almost certain,—that decomposition already occurs. Oxygen, in sufficient quantities for that purpose, is easily obtained upon the principle of permeation of solids by dissolved gases, which pass through the mucous coat of the uterus and the membranes of the embryo, from the blood of the mother; as, subsequently to the establishment of a materno-fœtal circulation, it is brought from the same source, by the blood of the umbilical vessels. It will now be claimed by some, tenacious of a mere hypothesis, that, having proved the probability of the admission of Oxygen to the embryo, even previous to the formation of any vessels in it, (a process equivalent to respiration), I must admit that the motion of the blood from the first, depends on the respiratory process. By no means. I have already shown that Nutrition involves attraction; and that that attraction must exert a force upon the blood. I have further shown that Nutrition is the necessary antecedent of oxidation; and the former is certainly by far the more active and efficient process during the whole period of intra-uterine life.

While on this subject, I may be allowed to introduce the following pertinent and very clear statement from the Fourth Edition of Meig's Velpeau, p. 216. "The nourishment of the ovum is dependent on various sources. At first it is a mere vegetable, which imbibes the surrounding moisture. The villi of its superficies, real cellular spongioles, acquire in the [fallopian] tube or in the womb the nutritive principles required for the development of the embryo vesicles; after which the embryo is nourished in the manner of the chick in ovo, or rather like the young plant, which is at first evolved at the expense of principles contained in its cotyledons. It gradually exhausts the vitelline matter contained in the umbilical vesicle. The

emulsive substance of the reticulated body or allantois is also gradually absorbed. It reaches the end of the second month. *The vessels of the cord are formed* [just fairly formed by this time.] The placenta soon begins to show itself, and suffices to *keep up* the evolution of the foetus. By its contact, the spongy cake takes up from the womb the elements of reparation [? growth] and operates on them, forming a fluid more or less analogous to the blood, which is then absorbed by the radicles of the umbilical vein. The placenta absorbs in the uterus, so as to form the fluids of the foetus, just as the liver, the kidney, &c., take up from their own vessels the materials from which to form the bile, the urine, &c.; as trees and plants absorb from the ground the principles of the numerous compounds they contain: and I see nothing in all these actions very difficult of comprehension." The reader will observe how constantly the idea of *nutrition* predominates through this whole description; how clearly the truth presents itself that nutrition is the attracting agency, which, through the various channels mentioned, draws fluids into the young being; and that the process of oxidation, or decay, is at this period, by a long stride below the former in activity. But it would be in the highest degree unphilosophical to select the *subsequent, secondary*, and at the time *less efficient* of *two attracting forces*, and credit to that the sum total of a result of considerable magnitude produced at a period when both were evidently in simultaneous operation.

As it is now proved that a circulation of nutritive fluid is established before either the heart or lungs come into service, we shall be led to infer that were both these organs suddenly removed, and in a way not to interfere too greatly with the integrity of the tissues at large, the *circulation would still continue* for a period, greater or less according to the degree of animal activity in the species experimented upon; and that were the heart and lungs to lose their capability of self-sustained action among the first of the organs of the body, a

movement of blood would in like manner continue in parts not directly dependent on their influence; and such have ever been observed to be the facts.

The force from oxidation of tissues, as must appear from what has been previously said, is most efficient at all times, after birth, in the nervous and muscular substance of the body; and in these it is especially so during active exercise of those structures.

3. A force from secretion, or **SECERNENT FORCE** has been established. This agency does not come into play until after the two already mentioned, and it is comparatively feeble during the remainder of foetal life. In the healthy infant it must exert a marked influence immediately after birth in more completely opening up the portal circulation, as the respiratory force does the pulmonary artery. At all ages, in a state of health, it is most active, considering their size, in the kidneys, next probably, in the skin, and less so in the liver and other glands, and in the adipose tissue. In the skin it is a consequence not only of the action of the perspiratory and other small glands, but also of the cells of the epidermis, which secrete a horn-like matter into their interior. In the same way it is a result of the deposit of bony matter in early age, and at all times of the formation of mucus over the large extent of membrane secreting that fluid. In disease, it may be abnormally increased in a part or organ; but the circulation then commonly flags or proves irregular from the occurrence of disturbance in the action of other forces.

4. Next, in the order of manifestations, is to be reckoned a **MUSCULAR FORCE**, derived from contraction of the ventricles of the heart, and to some extent reapplied along the course of the arteries, by the action of their middle coat. No sufficient proof can be given of the assertion sometimes made that this force acts with relatively greater energy during foetal life. The power of the heart is known to increase, while the frequency of its pulsations diminishes, from the earliest existence.

of a well developed muscular cavity in it, up to the period of greatest constitutional power in adult age. From that time not only the rapidity but the strength of its action gradually decreases. The action of this propelling agency is often greatly increased in disease ; but generally the other forces flag at the same time. In sthenic fevers and inflammations, however, the decompositive and combusive forces are increased simultaneously with that of the heart ; and in those cases the circulation is extremely rapid, while the exhaustion or waste of constitutional power is in proportion.

5. A force from combustion of carbon and other matters within the blood, or COMBUSTIVE FORCE, has been shown. It is hard to fix the precise time of the commencement of action of this force ; but we may be quite sure that it exists in a low degree, if at all, until the materno-foetal circulation has become fully established, and the minute oil-granules floating in the mother's blood may pass through into the placental vessels and enter those of the foetus. Certain we are that then large quantities of Fat in this way enter the foetal vessels, and are drawn off and deposited in its adipose tissues. And as Oxygen must also pass into the same vessels, we have present all the conditions requisite for the independent generation of heat, and consequently, of the mechanical power exerted by that agent. Those who doubt the mechanical power of heat, should call to mind the "*caloric engine*" of our own day, a machine just ready for adoption in a first class *Ocean—Steamer*, did I say ?—no : the inventive genius of our etymologists must yet supply the word. An ocean craft, at all events, is to be driven by *hot air*, and what is that but HEAT, attaching itself to an otherwise quiescent and powerless body—air, and upheaving a ponderous piston with force enough to turn a mammoth wheel at the other end of the machinery, and impel the vast hulk swiftly through the waters ? And those who doubt the fact that all the heat generated in the blood will prove effective in one direction, and that one whichever the

blood may have previously chosen, may kindle a fire at one point of a circular system of tubes, and then kindle one or many before it, or behind it, to turn the course of the air in circulation within! This force from combustion becomes, of course, more energetic in health up to mature age; and is greater in those who consume much combustible aliment, and can appropriate it, and during active bodily exercise.

6. Lastly, among the chief motive powers of the blood, we find a force from the interchange of gases between the air and blood, through membranes, or **RESPIRATORY FORCE**. This of course exists very feebly in the foetus, being there owing to the action of gases in the amniotic liquor, upon the blood, through the skin. With the first inspiration, after birth, however, it suddenly affords a large accession of force, quickening no doubt, the entire current of blood, as a means to more rapid action and development of all parts of the system.

Other minor agencies concerned in producing motion of the blood, are not deserving of farther mention.

SECT. XIII.—PRACTICAL DEDUCTIONS.

Having already extended this Essay much beyond the limits I had originally proposed to myself, and having designed in this place to take rather a theoretical than a practical view of the question in hand, I shall be under the necessity of dismissing this part of the subject with much less than the attention it really deserves. I shall state in order some of the important consequences in a physiological, pathological, hygienic and therapeutic point of view which seem necessarily to flow from the doctrines I have here labored to explain and enforce.

I. **THE PERFECT EQUILIBRIUM OF THE CIRCULATION IN HEALTH**, *is beautifully explained by the view here taken of the action of the organic circulatory forces*; and in no other way, indeed, can it be explained.

By equilibrium of circulation, I do not mean absolute equalization of the flow of the blood into different parts; for in this

latter state we should have to suppose every part to receive precisely as much blood as every other part of the same size. But such a condition of the body, could it exist, would be really morbid in the highest degree, and would rapidly prove fatal. It is calculated that the brain with its membranes receives nearly or quite *one fifth* of the entire amount of blood at any time in circulation. So the liver, stomach, muscles, and mucous membranes, must receive a pretty large supply, while there are other structures of equal bulk which get very little of the vital fluid, or next to none. Thus there is a normal quantity of circulating blood for each healthy tissue and organ throughout the entire body, when the tissue or organ is in a state of rest, and a *normal increase* in the supply to a given part, for every degree of increase in it of healthy excitement or activity.

What I mean, then, by equilibrium of the circulation is that condition of the system in which every tissue and organ has the full supply of the vital fluid which is natural or normal to its existing degree of activity, and no more. It is the balance of the circulation, or its distribution in exact proportion to the *needs* of every part. But what preserves this equilibrium?—how does it happen that every part, in health, receives just what it requires, and no more? There is no intelligent power back of the tissues which thus measures out and dispatches to each part its needed supply. The nerves ramified along the coats of the blood vessels, do not accomplish this; for where a stimulus is directed along a nerve, there *contraction* of muscular fibre occurs, and the vessel is made to contain less, rather than more fluid. The healthy equilibrium of the circulation, then, is maintained by agencies *in advance* of the current of blood, and these are the organic attractions taking place in the tissues supplied. In proportion as the vital activity in an organ is greater, just in that proportion will a current of blood, larger or more rapid, or both, sweep into and through that organ. As the activity becomes lowered, or sinks quite

into repose, the sanguineous stream lingers and lessens, until, in the part, its flow almost wholly ceases for the time.

We see, then, that to preserve the balance of the circulation, we must preserve every organ *within* (not *above*, nor *below*,) its own normal degree of activity. We must keep up a healthy action in every organ of the entire system: the action maintained will supply each with its due share of blood, from which it may draw the several principles requisite to a continuance of its own labors, and a perpetuation of the *harmony* of all the functions—the *health* of the individual. In other words we arrive at the simple, but beautiful truth, that the road *to* health lies only *through* health;—that if harmony of operations within the body is to be expected by and by, harmony must exist there now, and must have existed there in the past! There must be no monopoly of life by single organs; and no slighting of the calls of the members of the composite unit,—the living being. And as some of the organs are called into action by objects external to, some by objects within, the animal machinery, so it follows that the individual must be kept in harmony with *all nature*, yielding obedience alike to the laws that rule without, and within himself. No power within or without must tyrannize over the healthful instincts. No gratification that nature really demands must be denied; none that she does not intelligibly and unanswerably demand, must be for a moment allowed.

II. *The relations of ACTIVE EXERCISE to the rapidity of the circulation are also made clear.* We now understand why it is, when the laborer leaves his repose and enters upon his daily toil, that his respiration deepens and quickens, his blood rushes more rapidly through the vessels, his heart labors, and all the functions are exalted. In the muscles, that are taxed to antagonize the forces of gravity and cohesion in the world without him, decomposition at once becomes more rapid, more oxygen must be had, and to this end, more blood,—to furnish these the lungs labor, and so does the heart,—heat throughout

the entire system is elevated, and motion accelerated. This opens up other blood courses, and favors the increase of other activities. A better oxygenated and fibrinated blood is hastening everywhere welcomed by exalted affinities; and thus the former organism is rapidly torn down and removed, and the man is built up anew, more vigorous, more vividly interpenetrated with all Life's overflowing possibilities. Such is the reward of healthful labor. Who would not covet and secure so great a reward? He who does, must eschew a mock gentility, and disregard tyrannical custom. He must court Nature, and be a Man!

III. The reason of a more rapid and perfect evolution and establishing of the powers of the individual from exertion, is in like manner arrived at. Why reparation—*passibus æquis*—incessantly follows on the heels of normal decomposition, it is hard to say. But the fact is clear. He who wishes new and more potent muscles, must use up the muscles he has. He must work; and Nature's work is simultaneously performed. He who wishes a new and more efficient brain must wear out the old—not by *overwear*, of course,—and presently he thinks more fluently, and thoughts of greater depth and power, from the simple fact that he has before done much good thinking!

Going back into causes, Health is Harmony; but going forward into actualities, Health is Perfection, Power, Beauty, Success, and Happiness! Ye who crave any of these stupendous results, go straightway and question your inner, real selves: learn what Existence demands in and of you: that perform, and your recompense is sure. Work, breathe, eat, drink, clothe, enjoy, abstain, and repose, as a denizen of the free fields of nature, debarred by no fear, dogma, or edict. These changing responses to the wants of your existence, will keep in perfect play the little unseen affinities that in every fibre and cell of your physical framework, maintain, destroy, and renew, and mysteriously but certainly keep the fabricated

matter in fitness for the indwelling of God-like powers and capabilities. And in this, I do not the most distantly sanction licentiousness or irreligion. Law and Religion are perfect only *in Nature*;—by no means so in art!

IV. The causes which commonly lead to a loss of the equilibrium of the circulation,—to *congestions and chronic inflammations*;—will now be understood. These may almost wholly be summed up in two: *over-taxation* of the whole, or parts of the system,—*under-taxation*, or disuse, of the whole or of parts. The former exhausts the force of the entire system, or of some of its organs, and so robs the tissues of many degrees of organic power, and consequently diminishes the amount and intensity of their attractions. The blood not being, now, drawn with proper force into every part, irregularities occur. With these must come congestions; and, if any source of irritation be conjoined, inflammations. But under-taxation fails to keep up the constant generation of new tissues and new forces, in proper quantity in every part, and leads to the same irregularities in the flow of the blood, and the same resulting morbid conditions.

Hereditary transmission of diseasing taints, depressing agencies from without, as the presence of noxious gases, or from within, as fear, or grief, and insufficient or unwholesome food, all act essentially on the principle of under-taxation; while excitements, physical or mental, carried to the point of disease, want of rest, insufficient clothing, the presence of cold and dampness, or a non-electric condition of the atmosphere, all rob the system of its accumulated forces, and act primarily on the principle of over-taxation.

V. From these facts we learn the proper *prophylactic* course to be adopted in view of the presence of any of the morbid causes above named. In case of all the undertaxing agencies, our first and highest reliance is on wholesome and normal action of the entire system, or the sluggish parts: in all the instances of overtaxing agencies, our chief and indispensable

reliance is wholesome and normal REPOSE,—quiet, calmness, rest of the entire organism, or of the over-driven organs and tissues. Important as these principles are, I have not time to apply them at length.

VI. *Lastly*: We learn from the preceding observations, the true philosophical aim of the Healer,—the grand indication in the treatment of all Disease,—namely, to bring the tissues and organs, the entire body if need be, back from their deviations, whether in an upward or downward direction, to the strict line of NORMAL, HEALTHFUL ACTIVITY. I call this the grand indication in the treatment of disease, because I believe that, as there is no disease that is not attended with a deviation from the proper line of activity in the affected parts, so there is none but is accompanied also with an unbalanced state of the circulation of the blood, whether the same is detectible by our senses, or not. In the vast majority of diseases the *inequilibrium* is very palpably and unmistakably manifested.

It is true I have argued in the past that the great indication in all cases of disease, was to equalize or restore to its balance, the play of the nervous forces; and this upon the supposition that to these was owing the equilibrium of the circulation. But I now perceive that the balance of the nerve-forces of the body is only a coincidence in health, with that of the circulation, but not a cause of the latter. For if, in a healthy body, an organ be made suddenly torpid, and remain so, the arteries leading to it shrink and disappear in spite of nervous agency, and owing to the lack of the forces from before—or those organic circulatory forces which act by attraction.

The aim of the Physician, then, is always to diminish or augment activity. But what must be the consequence of the introduction into the system of poisons, inorganic minerals especially, or indeed of any agent, not capable of assimilation to the healthful fluids and solids of the body? A few may act by immediate depression, but most by local or general over-taxation, carrying the system further in any case from the line

of Health. Thus we see that, essentially, all such agencies are pathogenetic, or disease-creating and destructive in their tendency. And the scientific and philanthropic Physician will have recourse to such remedies only in view of the indirect or remote effects which may flow from their application, and which in various ways he has previously discovered, may prove salutary.

The superior equalizing power over the circulation, possessed by diaphoretic remedies has long been understood. But this is not the effect of the diaphoretic agent, but of the process of diaphoresis. It is because the skin is the most extensive continuous organ in the body, and because its position is at the periphery of the system, beyond all other organs, that the action of its numerous glands becomes so efficient in restoring equilibrium of the circulation. When the blood has been well attracted into every point of the remote surface, the internal parts are emptied of their congested fluid by a superior and highly fortunate attraction.

In fine, healthful labor, or use of organs, and healthful repose, constitute in themselves a potent array of remedial means. Artificial agencies are of no utility, only as they imitate, or lead back to, natural conditions.

REPORT H.

ECLECTICISM—WHAT IT IS, AND WHAT IT MAY BE.

BY P. C. DOLLEY, M. D.

MR. PRESIDENT, AND GENTLEMEN OF THE CONVENTION: It gives me many unpleasant emotions to know that I am so entirely unable to attend the National gathering of those who meet at this time, to show their fealty to truth and justice in the domain of medicine. Permit me to offer the failure of my health as my apology for not being present, and for the non-performance of duties which belong to me as a member of committees, &c.

But, though unable to be with you to bear witness by my living voice, of the faith which is in me, I cannot suppress an impulse which arises, to pen a few lines upon the subject of Eclecticism—what it is, and what it should be. Perhaps it would not be out of place to add—what it *MAY* be, if its adherents pursue the course which seems to be marking itself out for them—and what it *MUST* BE, if any or all the things are neglected which tend to its up-building and perfection.

What *it is* superficially, or in form, is not so difficult a matter for most of us to determine; for its history is within the scope of our memories. What it is philosophically, is to my mind a more difficult and far more important question, and may more appropriately be answered under the head of what Eclecticism should be. There has been no time in the whole history of medicine, but has shown large defects in that science, and an overbearing spirit on the part of its cultiva-

tors. The science has been shrouded in mystery, and the practice of it has in all ages tended to a severity which, in nearly all diseases, has materially endangered human life, to say nothing of injured systems, and shattered constitutions.

A few men of quick discernment have at all times protested against this mysticism and this severity, and have contended, and demonstrated even that a greater simplicity in the practice would insure more favorable results, and leave the system unexposed to the thousand chronic ailments which have ever attended the harsher means of medication.

At no time perhaps has medical despotism been more despotic than about the time that Eclecticism sprung into existence, and at no time previous had there been so universal an expression of public dissatisfaction, by the springing up of new systems as they were called. It was a happy thought of that time to bring all these systems together, new and old, to compare, analyze and sift them all; to select out the parts which common sense and a successful experience alike seemed to indicate; and to reject all those whose tendency was manifestly and certainly towards destruction.

This I need not say was the origin of the American Eclectic system of Medicine, nor that it has been eminently successful, and has continued to work and win its way, till it has now its advocates in every section of the western world. I allude to this point in its history only to bring out another idea, viz., that in thus looking at Eclecticism, we contemplate only its form—the simple external which it put on at the commencement—but which, alas! is quite as far as the most are inclined to look.

Its internal life, the spirit which animates it now, and which is to build it, and which may urge it on to certain triumph, is, I fear, almost forgotten, and is scarcely searched after, or studied into at all, either by opponents or adherents. We are frequently asked "what articles of the old *materia medica* we discard, and what ones we substitute in their places?"

When we reply, that we reject calomel, antimony, the lancet, arsenic, &c., and that we have introduced Podophyllin, Leptandrin, Macrotin, &c., &c., the questioner is satisfied that he understands well the whole system of Eclecticism; and worse than all, the answerer feels a pride that he has made so wide a distinction between the two systems!

We are told, and are daily telling it, that our views of the pathology of disease do not differ materially; nor our application of Physiological truths to the investigation of Pathology; and that it is only in Therapeutics that we strike out a course for ourselves. I fear that with too many the saying is too true.

But let me ask such as believe this; is such a foundation a suitable one on which to erect a system of medicine—a fabric which shall be honorable, honored and enduring? Therapeutics are, and ever have been changing, and it may be but a short time before we shall come together, in therapeutics, upon some common ground; then where would Eclecticism be? Besides have we no nobler ground? Can we not so embody the spirit of progress and reform in medicine, and what pertains to it, as ever to keep as far in advance of the progress of Hunkerism as we believe ourselves to be now? I say, shall we not? Must we not do it if we would honor our cause, instead of erecting for ourselves a platform in imitation of some of our political neighbors, which of itself limits our perceptions and convictions of truth, and impedes our action and progress? Better far erect one which encourages free and expansive thought, the most exalted and the most progressive action, and an entire deliverance from every oppressive thralldom and prejudice, or even tendency to them.

Let us look for a moment at our practice as compared with our professions and see how they correspond. We say that our views of the pathology of fevers and inflammatory diseases do not differ from those of other schools; but in accordance with their pathology they will plunge the lancet into

the veins, and draw from the system the very pabulum of life, then bring it under the influence and control of the most deleterious agents, and so keep it till it is brought to the lowest point of vitality. Every one understands that if he is treated by an Allopathic physician he is to be made worse, and debilitated to a low point before he can grow better. On the contrary we take no blood from that excited system; we use no remedies that are calculated to reduce the proper forces of the system; we are alarmed at the loss of vitality in serious cases, and our great endeavor is, so to remove obstructions to the play of the physiological functions, as to keep them acting as nearly up to the standard of health as possible.

If our pathology is the same, how can our practices be so diametrically opposite, not only in these, but in the most of the cases we treat?

My pathology of these diseases does not correspond with that of Allopathic writers; and I believe that after a due consideration of the subject, this would be found to be the prevailing conviction among the great mass of Eclectics.

Physiological facts of course must be the same in all schools; but the application of these facts to different diseased conditions, may be as varied as the prejudices or attainments of those who may chance to make them; and according to our views of the different pathological conditions of the system, so will our therapeutics be; for what are therapeutics based upon, except it be admitted pathological conditions?

Now what does all this lead us to? It seems to me to be an index pointing to the true philosophy of the Eclectic system; a voice that speaks to us in unmistakeable terms, that if we would prosper and cultivate the spirit, as well as adopt the form of Eclecticism, we must take higher and more independent ground, and make the other systems of medicine serve as nutrient matter, only after they have been digested

and made to pass into the system medical, in a proper way. In other words we should at once abandon a pathology which we are virtually pronouncing false in our every day practice, and at once base our own upon what we conceive to be true physiological science, and thus make the Eclectic system of medicine more distinct, and give it a self-sustaining and self-moving power.

I believe that it can be demonstrated upon physiological principles, that it is unscientific and empirical to resort to general blood-letting in any case where other means of treatment are at command; and I also believe that the use of mercury, can, from its chemical combinations and pathogenetic effects upon certain organs and functions, which must of necessity take place when administered—be proved—demonstrated, if you will—to be just as empirical and unscientific; and this too, without referring to these cases of mutilations and murderings which are so abundant in the history of its use. This I endeavored to do in the two courses of lectures I have had the honor of delivering in C. M. College. But aside from this, where have we a word or line of demonstrative evidence against the use of these agents, except in the facts of their pernicious influence, as drawn from experience.

I trust that our writers will soon embody in their productions, not only their objections to certain methods of practice, articles of materia medica, &c., but the scientific and demonstrative reason of those objections, and thus contribute towards making ours an independent system, that shall be Eclectic in spirit as well as in form.

There are many other things which should be embodied in our system and sustained with energy, as belonging to one of progress, which I shall have neither time or strength to dwell upon.

Among these, and as an important one, may be mentioned the movement we favor, of a change in the character of female education, and especially that which secures to woman

the privilege of a thorough medical education; for upon her proper mental, moral and physical developement, in contradistinction to that sickly, hot-house, fanciful and deceptive system, now so extensively prevalent, must the future well-being of the race largely depend. And it lies mainly with the medical world to say what that developement shall be. We should claim also the advocacy of the doctrine of the general physiological education of the people,—the teaching of a pure system of hygiene, and as a class of physicians we should ever aim to unfold all the abuses to which the human system is liable, whether it be through an improper system of education, or one of religious training, bad systems of diet, of social organization, the influences of impure air or water, or any cause that shall act unfavorably upon the health of community; and should so embody these ideas into our system that they shall become organized parts of itself. Should this be done, and the Eclectic party make itself—as it may do—the great party and organ of progress in medicine, instead of finding itself in an aplastic, or even caco-plastic condition in the future, it will assuredly soon find its elements composed of every anatomical material, and endowed with every physiological function necessary to the most perfect development.

I had designed to speak in this of Hydropathy, and the place it should hold in Eclectic practice; and of health institutions, and the necessity there is of our giving greater attention to them than we have done, as well as other points of peculiar interest to me; but I have already exhausted my strength, and your patience, and must forbear.

The subject of the future course of Eclectics is one which has occupied my mind very much for the last year or more; and the more I think of it, the more important does it seem.

There is evidently a way opening itself for them to enter, and indeed is already open, which leads on to fields of science, reform and progress, of which we have as yet scarcely obtained a glimpse, and if we will we may occupy them first and claim “pre-emption rights.”

If we base ourselves upon thorough science, embody correct principles in our creed, make our colleges what they should be, instead of endeavoring to procure a sudden, mushroom growth and popularity, by certain schemes, and if we labor earnestly and steadily to gain the confidence of community, by superior worth alone, and keep thoroughly up with the spirit of the age, we shall soon possess a power that will make the very gates of hunkerdom and quackery tremble.

I have not much to make me hope that my feeble labors will long be added to those of others who are engaged in this noble, and if properly carried out, I may say, holy cause; for with me the sands of life seem to be fast running out; but I would that my last words even may be such as shall encourage to higher and more determined effort. The action of a convention may tell largely upon our interests; or it may like all other action, be made such that it shall wither and fade before the sun of public opinion may fall upon it.

That your action may contemplate all the great subjects which have a bearing upon our future good, and be directed by the genius of wisdom, and the spirit of harmony, is my most earnest prayer.

REPORT I.

SURGERY.

BY S. H. POTTER, M. D.

MR. PRESIDENT: It is only in the practical branches of the ancient and honorable science of medicine, that new and old school physicians differ. We all agree that a thorough course of study, research and training is indispensable to qualify any one for the vast responsibility attached to the practice of the profession. In this essential point, all perfectly harmonize, and there can be no difference of opinion whatever.

What, then, constitutes the great source of disagreement, dividing them into the classes and pathies, so strikingly characterizing the fraternity at the present day? We answer, it is the means used in the treatment of diseases, and the manner of applying them.

Nor is there less difference in the practice of surgery than in that of any other of the practical branches of medical science, in these important respects.

We frankly acknowledge that it is to us a matter of deep regret, that well educated medical men, who harmoniously unite in every other particular, and who feel a kindred spirit of genial affinity, as Naturalists, in pushing their interesting investigations in all the vast field of Nature, should feel called upon to differ so essentially in demonstrating the great utility of the profession to the world. If we were all united practically, this intelligent, benevolent and honorable order would present a formidable claim to the profoundest respect and esteem, and secure the most distinguished confidence and honor from mankind. Notwithstanding these weighty considerations, a strict and firm adherence to truth, is the best mode of

relieving human suffering, and however unpopular it may prove, and attended with whatever sacrifice, is our imperious duty. Of this there has been no question among good men in all ages of the world.

Practical medicine has never been esteemed a matter easy of anything like mathematical demonstration. Hence much of it has usually been founded upon hypothesis. In the emphatic language of Eberle, "the history of practical medicine is but the biography of the rise and fall of different theories, each having its time to strut upon the stage, and then giving place to its successor." We will add, that no system of practice has been "regular" but while it gained a temporary popular ascendancy. No greater difference of practice exists at the present day, among well-educated medical men, than has existed in all ages of the world. But the thorough acquaintance of the profession with the structure and simple laws which control animal life and sustain health, induces us to believe that the day has already dawned, when laws equally simple will alone be resorted to for the cure of disease. This is reason and philosophy combined.

SURGERY, in its most plain and significant definition, means the treatment of external diseases by manual operations and medicines. The first means of treatment to which we object, is blood-letting. The indications claimed to be fulfilled by the employment of this, are, 1st, to draw off the inflamed, or buffy blood; 2nd, to relax the whole muscular system; and 3rd, to equalize the circulation. 1st, It is evident that if any portion of the blood is inflamed, the whole of it is alike so; for physiologists inform us that it performs a round of circulation every four minutes. If, therefore, we are to draw off the inflamed blood, we must of necessity take the whole of it—a "heroic treatment" to which few patients would submit! We have witnessed numerous cases among the high and low, where "copious bleedings" were successively resorted to, and where the patients shared the same fate as did Washington, the illustrious Father of his country, in his last illness.

2nd, Bleeding only produces a temporary relaxation of the muscular system, when to fulfil the plain indication, it needs a much more permanent relaxation, the dynamic force of the heart and arteries being also to be overcome; and hence it fails to fulfil the purpose for which it is used, in all cases. This is proven by the fact that Tartar Emetic, Digitalis, &c., are immediately used to nauseate, and relax the system.

3d, To understand how the taking of blood from one part of the body can equalize the circulation in another, is, we acknowledge, beyond our comprehension; and we must leave it to others to explain. This would be something on the principle of the man that took off his coat, because his legs were too cold, hoping to warm them by chilling his body.

So soon as an inflammation of any part occurs, an inflammatory fever arises, and at the same time all the secretions are suspended, or greatly diminished. Digestion ceases, of course, with the suspension of the secretions. The supply of blood is kept up by the nutriment afforded by the digested food, taken up by the lacteals and carried into the circulation. This supply—during the existence of inflammations—is cut off, or greatly diminished; and the disease itself is essentially bleeding the patient. Now, to draw off any portion of the blood already there, by artificial means, is obviously an unwarrantable robbery of what the system requires to sustain healthy vitality, and insure a speedy convalescence.

We now propose to substitute a treatment, fully answering every indication,—not only what bleeding is claimed to do, but much which it cannot do; and all without robbing the body of blood, or any of its fundamental constituents of vitality, and at the same time, promoting healthy secretions, and leaving the system ready to perform healthy digestion, as soon as the acute stage of inflammation subsides.

Instead of bleeding, we administer small doses of *Lobelia Inflata* at proper intervals, sufficient to nauseate the patient, but not sufficient to produce emesis. This, all can testify

who ever used it, controls muscular action, relaxes the system, greatly moderates the arterial circulation, and determines the fluids to the surface, while at the same time it excites all the secretions, those of the skin not excepted. At the same time, we make cold applications rigidly and continuously on or over the inflamed part, while we stimulate and excite every other portion of the body. By this means, we never fail to equalize the circulation where anything would do it, and often subdue disease which we have failed to, while we followed the use of blood-letting, Tartar Emetic, &c. The above treatment aided with Ext. Cypripedium, Tinct. Gelsemium, &c., as auxiliaries, will soon subdue inflammation, equalize the circulation, calm the system into quiet and rest, very soon to revive with natural appetite and digestion, and to walk abroad with a firm and manly step, none the worse for the treatment received, and with no dropsical bloating, as is usual after free and copious bleeding, nor the debility, indigestion and rheumatism, following the use of tartar emetic and mercurials.

The second means of treatment to which we object, is the use of mercurials. Mercury is thirteen and a half times the weight of an equal bulk of any structure of the human body,* and cannot, from its density, be a proper material to introduce into the circulation. If introduced in ever so minute particles, in the form of blue pills, or prepared in chalk or magnesia, it is liable, by its great weight, to be lodged in some of the animal structures, and there form a nucleus of inflammation and ulceration. All the standard old school authorities admit that it has been so found in the brain, liver, lungs, bones and almost every other tissue of the bodies of those who had used it while living. The hydro-chloric acid present in the gastric fluid has a strong affinity for it, and it is liable to be converted into corrosive sublimate in the human stom-

* Thirteen and a half times the weight of water; but some of the tissues are heavier than water.—Ed.

ach,—the result of which is a greater or less degree of inflammation of that organ, with salivation and permanent, irreparable injury to the patient. Podophyllin, Stillingine, Lep-tandrin, Iridin and Sanguinaria offer themselves as substitutes in all cases internally, as safe, complete and efficient remedies. If it is urged, that in the treatment of syphilitic diseases, mercurials are indispensable, we reply that the highest old school authorities have already admitted that the Bichromate of Potash possesses most undoubtedly anti-syphilitic properties more active and energetic than the mercurial preparations, and may advantageously replace them in the treatment of syphilis. Mercurials are not soluble except in the form of corrosive sublimate—their strongest and most poisonous form, while this preparation is soluble in water, and easily used internally or externally. Druitt says, page 180, “that all kinds of primary and secondary symptoms of syphilis can get well without mercury, and the average period of cure is much the same in both cases.” Then, from their own acknowledgment, there is no excuse for continuing this inhuman, mutilating and destructive course of treatment, so obvious to all the world. The corpses of the slain and the yet living, mutilated cripples who greet us everywhere, offer solemn proof of the direful effects of mercurials, in so general use by the popular profession. In view of this, we are nerved to the conflict of truth against popular error “in high places,” with the full assurance of an approving conscience, and of the future triumph of our cause.

3d, Tartar Emetic is equally or even more objectionable, if possible, than mercury. Applied to the surface, it inflames, ulcerates and destroys the tissue. It cannot do less to the delicate internal mucous tissue. It irritates the stomach and bowels, and, when taken into the circulation, dissolves the blood, deranges and renders morbid the secretions, and alarmingly prostrates every vital energy. No wonder a law was passed in France prohibiting the use of a poison so deadly, so

insidious in its action, and so easily mistaken for disease in its effects. And it is indeed, astonishing, that it is so freely used in this county, while its effects are so obviously and so fearfully deleterious.

4th, We object to the use of Arsenic, so much employed in surgical diseases. Without extending our remarks on the baneful effects of this article, we would say,—its effects when taken, are almost precisely like those produced by corrosive sublimate, and the dose of both is the same. No one ever took it for any length of time in the minutest doses without lasting and irreparable injury; and no one takes it in larger doses, except through mistake, or with intent to kill. It is surprising that the people will send one member of their family for arsenic with which to kill rats, and another for a doctor, who comes freighted with the same article, to treat their children for diseases of the skin, or for ague, when very often the latter die about as soon as the former. We rejoice that the day has come when the people adopt the spirit of inquiry, and look to this matter as a means of self-protection.

5th, We further object to the use of the enormous doses of Opium, and its various salts, so generally exhibited. They suspend the secretions, encourage alarming congestions, constipate the bowels, stultify the intellect, spin out diseases, shatter the nervous system, and often render persons useless for life, by making them confirmed Opium-takers. We often think of the horrible condition of that distinguished medical author, Eberle, who brought upon himself apoplexy and premature death, by taking large doses of Opium. Since nature has furnished so many pleasant and harmless things to quiet the nerves, which leave no sad after-effects, and which are so well known to the profession, how shocking the thought that such things should be thus used!

6th, The internal use of sugar of Lead is not less reprehensible. It produces colic, irritates the stomach and bowels, and is in itself an irritant poison. There are so many

other things which answer fully in its stead, that there can be no excuse for using it. Yet it is given in passive hæmorrhage, diarrhœa, &c., as a very common prescription. The people should be apprised of their danger.

7th, The use of Croton Oil internally and externally, is barbarous, and its consequences often most disastrous; and intus-susception of the bowels and death are often directly induced by this drug. Applied externally, it produces inflammation and ulceration, attended with awful suffering by the patient. And many a patient has had the structure of the bowels ulcerated through by its internal use.

Time would fail us to call the attention of this Association to the many obnoxious, poisonous and dangerous articles now in common use among the profession, which render it nothing better than an awful scourge to the world. A mere notice of the few articles to which we have called your attention, must suffice for the present; and we urge upon you all the imperious duty of raising the warning voice, and sounding the alarm everywhere. The lives of young and old, by thousands, are taken daily; and the united sepulchral voice of the millions slain comes up from their tombs in solemn charge to you, to do your duty by an aggrieved race.

We will now call attention to a new mode of treating erysipelas. This disease differs materially from every other form of inflammation, there being evidently a preponderance of the venous blood in the minute venous capillaries. We have found by experience that dilute alcohol and water dressing, excluding the atmosphere, acts like a charm in the first stages in subduing this disease, and the more active volatile oils, cut with alcohol, in the latter stages. If this course is pursued externally, and gentle emetics and cathartics, with vegetable alteratives given internally, no large abscesses, and no mutilations or amputations ever need occur. We have been shocked while visiting the surgical wards of the Hospitals of New York and Philadelphia to see patients lying sali-

vated, sweltering under great heavy flax-seed poultices, which being thrown off, their limbs were gashed or incised in accordance with what the French call "the heroic remedy in erysipelas." We have treated a great number of cases of erysipelas, and know, that by the simple means above mentioned no evil consequences need follow. We then are called upon to redeem our beloved profession from these sad and revolting errors, and to become thereby the benefactors of our race.

We will conclude this already too lengthy report, by giving a few cases of rare occurrence which we have treated the past year.

Mrs. B. of Jefferson Co., N. Y., has been the mother of 6 children, the last of which was about 3 years old. At the time of its birth she received an injury at the hands of an old school attendant, and suffered severely up to the 20th of July last, when I was called to visit her. She was greatly prostrated by continued unhealthy uterine discharges of a very thin, sanguineous character. She was enormously bloated, with pale, anxious, Hippocratic countenance, which deeply impressed us with her state of suffering. Her pulse 130 per minute. On examination per vaginam, we found a polypus attached to the fundus uteri, seven and a half inches long, and four and a half inches in diameter, which at this time filled and expanded the vagina much more than an ordinary infant's head. We found that everybody considered her case hopeless, and that an operation would be viewed in the light of a reckless imposition of suffering, and a hopeless interference.

We found her then in the charge of Drs. Harrington and Hale, two worthy and skilful New School practitioners, to whose well directed exertions she was indebted for her existence to that time. We saw that there was a possibility of relief by ligaturing the tumor, and that certain death soon

ted her without it. She was willing to submit to the

operation. We ordered two curved metallic tubes, obtuse at one end, to be made eight and a half inches long, with two sliding bands, and a double ring to confine the two parts of the canula together. On the morning of the 21st, we repaired to the residence of Mrs. B., attended by Dr. Kilbourne of Oswego, Dr. Noteman of Watertown, and Dr. Harrington before named. We introduced the newly invented curved double canula armed with a good silk ligature of suitable size carrying it up to the neck of the polypus. We then held one part of the canula stationary, and carried the other horizontally entirely around the tumor, and brought it in contact with its fellow. We then passed one slide up to the slight knobs on the upper ends of the canula, and the other slide to the outer ends. We next interposed a small piece of wood between the outer ends and tied the ends of the ligature tightly over it. Her attendants tightened the ligature every day, and removed the entire polypus on the 30th, or nine days after it was ligatured. Mrs. B. has since rapidly recovered, and is in the enjoyment of most perfect health and strength. Much credit is due to her attendants in her subsequent recovery, and her case is one which exhibits the triumph of professional skill.

In September last, a boy two and a half years old, fell down the stairway of a canal-boat in the city of Syracuse, and somehow in the fall, bit his tongue entirely through, and two thirds across, about one inch from the end; and we found the separated part hanging out of the corner of the little sufferer's mouth. We seized the tongue back of the incision, with a polypus forceps, and with the aid of an assistant, passed a suture through the tongue and piece separated, drew them in close apposition, and tied the suture. The suture was removed the 5th day, and the tongue healed entirely within two weeks, when the boy could talk as well as before the accident. We know of no other case of the kind on record.

A Mr. Joseph Lyon, who resides in the vicinity of the city

of Syracuse furnishes a case of that singular disease called Elephantiasis. The calf of the right leg measured, ten years ago, 37 inches in circumference, and it measures 28 at the present time. The instep is enormously thickened and projects forward, obscuring the toes from the sight, when looking down from above. The track made by the man in the sand is quite similar to that of an elephant. The disease was caused by the bite of a copperhead snake, 29 years ago. He suffered great pain, and was perfectly disabled 4 years; but since that time, has performed the usual amount of labor for a man. He is now 79 years old, weighs 232 pounds, and can chop 2 cords of wood per day. He is perfectly well in every other respect. The skin of the diseased portion of the limb and foot has almost the precise color and texture of that of an elephant. We will not now stop to give the pathology of this very singular disease; but it is really a curious specimen, showing the great tenacity of animal vitality under the long continued phenomena of extensive diseased action.

In conclusion permit us to urge upon each member of this Association the necessity of paying more particular attention to the practice of Surgery. Herein it is, that the New School profession most need to improve themselves. Do your own Surgical practice and not allow another to wear the honors which properly belong to yourselves. Then, and not until then, shall we prove to Old School men, formidable and successful competitors in every branch of our honorable profession.

Syracuse, May, 1852.

REPORT K.

MATERIA MEDICA AND THERAPEUTICS.

BY W. W. HADLEY, M. D.

As a member of the Committee appointed by the last National E. M. Convention, upon Materia Medica and Therapeutics, the undersigned begs leave to submit the following Report :—

Since the meeting of this Association one year ago, great changes have not, perhaps, been manifest in our Materia Medica as it existed previously, but we have to note improvements annually in this department of medical science. Investigations are continually being made, developing more and more the vast resources, in the way of materials for medicine, of the vegetable kingdom, and showing by actual demonstration, rather than by any theories that have heretofore, or may be supposed hereafter to exist, that the dangerous, life-destroying agencies which have been ignorantly and empirically prescribed as medicines, and which are followed by the most alarming and often fatal consequences, can now, through the enlightened and humane efforts of medical philanthropists, be safely dispensed with ; and that their places can be supplied by mild, harmless and genial remedies, whose office is not to corrode and destroy the living tissues of the body, but to act in conformity with the laws that govern our physical system. Instead of poisoning the sources of life, the remedies to which I refer, rather clear away the impediments which have obstructed the harmonious action of this "harp of a thousand strings,"—and having performed this office with

regularity and certainty, instead of remaining to disorganize and derange the mechanism of life, they silently and gently pass off through the natural channels, without the infliction of any dangerous after-consequences.

At this age of the world, and among the enlightened citizens of this country, we need enter into no argument to prove, what is now being so generally admitted, namely, the demand that exists for a different mode of treatment, and a different class of remedies from those which, so clearly poisonous in their effects, have annually carried their thousands to the grave, and which have so injured and deteriorated the constitutions of the present generation, that they are dwarfs, almost, in comparison with the stalwart frames and robust health of generations preceding us.

These facts, and facts they are, beyond the possibility of successful contradiction, have influenced a few philanthropic and well-minded individuals to investigate more clearly the hidden mysteries governing the influence and effects of remedies acting upon the human body, and by employing only those that are sanative in their character, that do not destroy, while they heal, they have succeeded in forming, or associating together a list of medicinal remedies from the host of harmless vegetable, and other productions surrounding us, which, when properly understood and judiciously employed, may be safely resorted to for the successful treatment of all curable diseases to which humanity is subject.

We do not mean to say as do some, that there is nothing more to be achieved in this field, that we must not go beyond the "books" for instruction, and that no agent can substitute those already within our knowledge. Far from it. We live in an age of improvement; an age in which the knowledge we already possess, is but an instrument in our hands for opening those deeper recesses, where lie hidden treasures concealed since the creation of man. Each day develops some new truth; annually are accumulated a multitude of facts, which

tend directly to ameliorate the condition, and promote the happiness of mankind ; and, which, when duly understood and appreciated by the mass, will undoubtedly greatly augment the average duration of human life.

And among these, may be essentially classed, the improvements which have been introduced in the *Materia Medica* of the Eclectic profession. Not only during the past year, but previously, have they sought and obtained agents, potent in their influence to check and remove diseases from the human system, while at the same time they are free from the objections reasonably urged against the harsh and destructive preparations heretofore in use by "regular" physicians. Judging from the symptoms every day manifested by the people, in their growing distrust of the advantages to be derived from the mercurializing course, we cannot but think, that it is "regularly" becoming a discarded treatment, and that it is succumbing to a dwindling popularity, day by day.

The mind of man is in love with the law of progress. The influences which have kept it chained down to the ideas of Pagan ages are being removed. The full sun of knowledge is throwing its effulgent rays freely upon the intellect of the world, and warming into light the latent germs of thought that have slumbered long, unconscious of their existence ; and these, in their turn, scintillate new-born sparks upon other minds. These, too, take fire, and the illumination continues to extend, till soon empiricism, and charlatanry, whose proper *pabulum* is ignorance and superstition, will have passed away, and the true light of science shall reach as far as humanity shall exist, ushering in the glorious time, "which kings and prophets waited for, but died without the sight," when shall be calculated with great accuracy the influence of disease upon the body, and the most certain agencies that can be applied for its removal,—when the human family shall no more be destroyed by disease in youth, nor ignorance any more prevent its direful ravages from being stayed.

The introduction of the concentrated remedies, obtained from our indigenous vegetables, will mark an era in the history of reform in medicine, and will achieve more for the triumph of the cause than any other single step that has been taken during its progress. It is exactly the thing needed; and we cannot refrain from the remark in passing, that it adapts our system most peculiarly to this age, when people have come to have delicate tastes, and delicate stomachs. It removes the objections so frequently urged against vegetable remedies, that they were too huge, too bulky, that so large a quantity was required to produce an effect, and that it so encumbered the stomach, that the community were almost prepared to discard the system altogether. These difficulties are now, happily obviated, by the separation of the inert, ligneous and other bulky portions, from the medicinal principles, so that our doses now, will seldom be refused by the most sensitive stomachs.

The attention of those engaged in the manufacture of the concentrated remedies, is being directed to new articles of our indigenous *Materia Medica*. The list already embraces a large number, and is continually extending; so that in a few years we may expect that all, or nearly all medicines will be employed in this form.

One difficulty under which the profession are compelled to labor, is the scarcity of suitable text books upon this department of medicine. A few minor works, giving a portion of our remedies, have been published, some of them very creditable productions; but we need a work embracing a more extended variety of medicines, together with a more accurate and general history of their properties and powers. We are happy in being able to inform the profession, that a work of the kind has long been in contemplation by a member of one of our oldest institutions, and it is already, according to the best information we have, nearly advanced to a state of completion. When placed before the public, we have no doubt,

from the high professional reputation of its author, that it will be every way worthy of their confidence and patronage.

During the past year there has been published an Eclectic U. S. Dispensary, by King & Newton, which, considering the amount of new matter it contains, and the varied and extensive information in it, adapted to constant and every-day use, is a deserving work, and certainly does credit to its industrious and able authors.

Succeeding editions will make it still more full and practical, and render it an indispensable assistant to the profession.

ROCHESTER, May, 1852.

REPORT L.

OBSTETRICS.

BY J. SITES, M. D.

MR. PRESIDENT: I feel a delicacy in rising to make a report on obstetrics, having just had the honor of being appointed on the committee; but I conceive it to be our duty to act when called upon, and I shall therefore confine my remarks to obstetrical surgery.

During the year 1842 I was called to attend a parturient patient, and I may here remark that this was the second case of labor to which I had given my attention. Upon my arrival, I was informed that three Physicians of the Allopathic School had abandoned the case. I found the patient in a sinking condition, with cold hands and feet; lips pale, and pulse feeble, and the Uterus had ceased to contract. I made an examination, and discovered a presentation of the feet in the third position. In this position, the heels looked to the right sacro-iliac symphysis, and the toes to the left cotyloid cavity.

The treatment I directed was, first, a compound composed of Capsicum and Ergot, steeped in hot water. I likewise applied the extract of Lobelia Inflata around the region of the Pelvis, in conjunction with cloths dipped in warm water. Under this treatment, and without the use of instruments, I succeeded in delivering my patient of a child, the weight of which was twenty-one pounds, the head measuring twenty-seven inches in circumference.

The child was dead, but the mother resumed her domestic duties, in sixteen days. I felt great pride in my success; and I can assure you, Mr. President, I came to the conclusion that

those who used Instruments in obstetrics, had something yet to learn. But time and experience are useful teachers, and I have been compelled to acknowledge, that instruments, under some circumstances, are the only means of saving life.

Notwithstanding I have been under the necessity of using the Forceps on four occasions, and performing the operation of Craniotomy on two, I never resort to their use until Medicinal means have failed to produce the desired effect.

Suppose, Mr. President, we are called to a patient, and upon examination, we discover the foetal head presenting in the sixth position. We make an effort to change the position. If we fail, in consequence of the head's being wedged tightly in the superior strait, and after waiting for a time, find the patient sinking, we would then resort to stimulants in order that her strength may have the support necessary in such a case. We would also resort to local relaxants. But if these means fail, are we to suffer our patient to sink into the arms of death? or shall we make an effort to deliver with the Forceps and save both Mother and Child? Should these fail, it becomes our duty to save the Mother at the expense of the Child.

Under these circumstances, we are compelled to resort to Craniotomy. After perforating the skull, and breaking up the brain, authors generally recommend leaving the patient for a few hours, and allowing nature to effect the delivery. But authors are not always practical men; and I consider it not only highly censurable, but cruel, under these circumstances to leave the patient.

My mode is, after breaking up the brain, to introduce one blade of the Craniotomy Forceps inside of the skull, and the other on the scalp, and effect the delivery as soon as possible. This operation may be performed from commencement to delivery, in the space of seven or eight minutes. It is always requisite, in performing operations of this kind, to quiet the fears of the patient. This may be effected by the Physician's

pursuing a quiet and dignified course, not showing the least timidity or embarrassment.

Nowhere is decision of character and promptitude of action more required, and in no case is the man of science more distinguished from the pretender. In no situation is the conduct of the Physician more the object of present attention, or of future criticism.

But permit me, Mr. President, before closing, to make a few remarks in reference to the use of Ergot.

This article should be used only when the *Os* is well dilated, and the contraction of the Uterus feeble. In this condition of the case, Ergot, in conjunction with Capsicum, may be used with advantage. Many of our Eclectic Brethren condemn its use entirely, on the ground that its effect on the Fœtus is fatal. Experience, however, has taught me otherwise.

It may prove fatal to the Fœtus if administered when the *Os* is not well dilated, for it is likely to keep up a constant contraction of the Uterus, thereby cutting off Fœtal circulation. If contraction of the Uterus under the use of Ergot continues for the space of four or five minutes, and birth does not take place, death is produced by the cause just specified, and the patient when delivered, will give birth to a dead child.

Hence, Mr. President, we perceive that, as with Instruments, so with Ergot, they should be used only at a proper time, and in their proper place, and that as a *dernier resort*.

Philadelphia, May, 1852.

REPORT M.

OBSTETRICS.

RATIONALE OF SUPERFŒTATION.

BY O. DAVIS, M. D.

The belief that a second impregnation can occur while the Uterus is already gestating, is quite common. The doctrine is assumed, because the births of mature children may succeed each other after an interval of months. It might be said that, in the first instance, the child anticipated the ordinary term of gestation, while with the latter, it was prolonged. But this is not altogether a fair inference where the signs of maturity are alike complete in each.

Then how can we explain the occurrence of conception when the female is already pregnant? The apparent difficulties in the way, are, the formation of the deciduæ immediately after the first impregnation, which line entirely the mucous surface of the cavity of the Uterus, and which hermetically seal both Fallopian orifices; and likewise the formation of the cervical plug, which prevents any entrance into the Uterus. The difficulties are really, only seeming in my opinion, and rest upon the assumption that the second conception is the result of a subsequent co-habitation.

The theory I propose as the *rationale*, is this; that the sperm-cells enter simultaneously both Fallopian tubes. That in one of these they encounter a mature ovarian germ or cell, on its way to the Uterus. This conjugation of cells is impregnation, and the usual changes follow in the Uterus, viz: excitement, congestion, the developement of Uterine villi which furnish the deciduæ, and prepare for the reception

of the advancing embryo. In the other Fallopian tube, the sperm-cells meet with no germ-cell, while the Uterine villi close the Uterine outlet of the tubes, preventing the return or escape of the sperm-cells. Here they are imprisoned during the term of gestation of the first fœtus, or until a germ-cell is matured and cast off by that Ovary, which encounters the sperm, and again, a second impregnation is the result, followed by conception. If then, the term of gestation be with each about two hundred and eighty days, both may present the signs characteristic of maturity, and yet one may succeed the birth of the other, after the lapse of two, three or even four months. This explanation may be objected to, on the supposition that the vitality of the sperm-cells cannot continue so long under those circumstances. The kernel of wheat, which contains the life and is the seed, will grow after the lapse of even a thousand years. And likewise we have the evidence of some remarkable examples, in which the Fœtus has been developed within the abdomen of a child, and within the testes also; and there are other instances, which sufficiently illustrate that vitality may influence matter under very extraordinary circumstances, and for an indefinite period of time. This, therefore, cannot be a valid objection to the theory.

This rationale assumes that pregnancy does not put a stop to the developement of germ-cells, and we can hardly avoid this conclusion, when it is so fairly maintained, that they are necessary to establish the catamenia. The many instances of regular return of the catamenial flow during pregnancy, establishes the assumption, while its cessation generally may be attributed to other causes attending pregnancy. This proposition is not new, but is maintained by Prof. Meigs, and other standard obstetric authors.

Prof. Davis answered other objections in his extemporaneous remarks, which were somewhat extended, and concluded by remarking, that although his explanation and theory

may be plain and simple, yet he believed it was in unison with the latest researches in physiology, and that the time spoken of by Dr. Churchill, when a satisfactory explanation would be given, has already arrived. If any writer had attempted any explanation of this subject, it had not as yet come within his observation.

Rochester, May, 1852.

REPORT N.

CHEMISTRY.

BY W. PAINE, M. D.

MR. PRESIDENT, AND GENTLEMEN OF THE NATIONAL E. M. ASSOCIATION: It is with much regret that I am compelled from a variety of circumstances, to be absent from your Convention. I have looked forward to the assembling of that body with much interest and anxiety. To it we look to be informed how, with the greatest facility, we may accomplish the great Reformation in Medicine, which we have but just commenced. It is to this Convention that we look to give permanent character to our movement, and wholesome counsel to those who have it in charge. We expect this Convention not only to give counsel and character, but to discuss the great and intricate problems underlying the advancement of Medical Science. It is to be presumed that this Assembly will take a retrospective survey of human science. They may even pass beyond its awful limits, guided by the torch of a Buchanan, and a Reichenbach, and may aid in sculpturing out from rude nature those mighty truths lying nearer to the throne of the great *I Am*. Meanwhile, less powerful minds may amuse themselves, by following in their wake, and breaking up for minute examination, the huge cliffs which others have left behind.

I am in hopes there will be sufficient interest manifested in this Convention to retain its *National Character*, because it will have a more extended influence, and exert a greater tendency to unite our forces, and to make our claims as Medical

Reformers more justly appreciated. It is to be regretted that there are at the present so many branches of the Medical Reform movement, as each can exert but a limited amount of the influence that would be brought to bear by one united body of Medical Reformers. Eclecticism has for its motto, "truth and progression"; and I apprehend the time is not far distant, when the Physopathic, Hydropathic, and Homeopathic ranks will all unite as co-laborers with us. Homeopathy has already made one step towards this union, by embracing the resources of Hydropathy; and but a single step farther will bring that system upon the same platform with Eclecticism. I am in hopes this convention will take into consideration the great importance of making the student of Eclectic medicine perfectly familiar with all the various resources accessible to our profession; and that our Colleges will make provisions to supply any deficiency of the kind that may exist. I do not mean, to establish a separate chair upon each of these isolated subjects, but that the lecturers should make their lectures comprise all the peculiarities of each; and we need not in the least fear that two great truths will come in collision.

The Department assigned me was that of Chemistry. When I consider the magnitude of the subject, I am happy to find myself associated with those who have paid very particular attention to this Department of Physical Science.

At no former period has the Science of Chemistry received such an amount of attention from the Medical Profession, as at the present. When we take a survey of the recent discoveries and improvements in this Science, we can but admire the rapid strides made by its industrious cultivators.—Among the more recent discoveries of Chemistry, we find those made by M. Dubree, who observed that the ores of tin are constantly accompanied [by fluoric or boracic minerals, and found, particularly mica, topaz, tourmaline, &c., which induced him to believe that this circumstance was connected in some way with the formation of the ores, and that the tin

was brought into its beds in a state of fluoride, and there underwent a double deoxidation, producing the oxide of tin, and fluoric minerals. He has been enabled to produce oxide of tin artificially. I believe however he used the chloride, instead of the fluoride. He has also been successful in producing crystals of oxide of titanium, and crystals of quartz.

I would also call your attention to the experiments of Despretz, and his mode of securing the most powerful heat, by bringing together the heat of the sun, the electric current, and a blow-pipe of Carbureted Hydrogen. By this powerful concentration of heat, hard and compact magnesia immediately volatilizes in the form of white vapor. These experiments show the fusibility of many substances which had never been fused or volatilized before. His method of application is to use a Galvanic Battery equal to 185 pairs; an annular lens about 1 yard in diameter, and a blow-pipe of Carbureted Hydrogen. The amount of heat thus generated, must yet be made subservient to some valuable purposes.

Another important item is the discovery of Maumena, of the action of chlorine upon sugar, and its value to Physicians in enabling them to detect its presence in the urine, as that is the only prominent symptom, by which to distinguish Diabetes from Diuresis. The action of the chlorides on all sugars is the same. The process is one of dehydration—leaving a brownish black product. To make this test convenient to the Physician, we may take a piece of merino, and immerse for four or five minutes in a solution of bi-chloride of tin. Dry the merino, and cut into strings, and by dropping one drop of urine on this test cloth, and holding it over a lamp, close, for a minute or two, if there is sugar in the urine, a dark spot will appear. This test is not only easy and convenient, but correct. I would also call the attention of the convention to the investigations of Mr. Gasparin, on the nutritious and medicinal effects of coffee. The investigations of Prof. Gregory on the effects of chloroform, and its impurities,

are also highly important. He states that all of our chloroform contains a chlorinated oil; and to this he attributes its unpleasant and often dangerous effects. He proposes as a test of its purity, to add a small portion of chloroform to an equal portion of pure sulphuric acid, and if this oil is present, it will color the acid yellow. Pure chloroform does not color the acid. Mr. Kemp has a very easy and simple method of purifying chloroform, by agitating a portion with half its bulk of sulphuric acid; then by peroxide of manganese, the purification is completed.

It would be well for our Pharmacutists to turn their attention to the Cail Cedra, a medicine used very extensively by the natives of Africa and India, as an antidote to their fevers. It appears to be a Febrifuge; and it is stated by travellers that it appears to possess great power in controlling the fatal diseases of that climate, which are mostly of an intermittent character. This tree is indigenous to Gambia and the low lands of Cape Verde, and belongs to the family of Meliaceæ. The natives take the bark in infusion, and bathe in the same. The organic principle obtained by Caventou was a solid opaque resinous salt, of a yellow appearance, a green fatty matter, a red and yellow coloring matter, sulphate of lime, chloride of Potassium, Phosphate of lime and Ligneous matter. I would be glad to call the attention of the Convention to other matters, especially to the chemical properties and Therapeutic effects of many of our indigenous plants and barks, but neither time nor space will permit. Before closing this subject, I must state my hopes that all of our Colleges will adopt the free medical school system. I am sure from the effect it is having in this section, it will more than treble the number of students, and enable all to become more perfectly acquainted with the profession, before they commence practice. We have a large number of young men of the first order of intellect just commencing the study of medicine, and expecting to take the advantage of the Free School Sys-

tem. The progress of Eclecticism in Northern Ohio for the last few years has been triumphant; and the decline of the Old School is equally marked.

In conclusion, Gentlemen, I have only to declare my belief that if our future course is marked with the same spirit of Radicalism, Investigation and Progress, which have characterized our career, the victory must be ours.

Warren, Ohio, May, 1852.

ADDRESS

TO MEDICAL ECLECTICS THROUGHOUT THE UNITED STATES.

Friends and Co-workers :

The National Eclectic Medical Association was formed, a few years since, "for the purpose of more rapidly extending the principles of medical reform," and for "promoting the knowledge and dissemination of all improvements in medical science." The recent meeting of this Association, held at Rochester, N. Y., was one of deep interest and much profit. Delegates from New England, the Middle, the Western, and the Southern States were present; and, by an interchange of views and an explanation of the position of parties hitherto standing aloof from each other, a satisfactory assurance was gained that, with the exception of a limited number of ultraists, whose ignorance and dogmatism are more entitled to our pity than our respect, those in the profession, commonly known as reformers, essentially harmonize in their interpretation of the fundamental principles of medicine. After a full and free discussion, a common platform or succinct delineation of principles, presenting the leading features of true and scientific Eclecticism in medicine, as understood in the United States, was cordially agreed on and adopted.

At no time since the formation of the Association, have its prospects for possessing the means of scattering broadcast the seed of medical truth been so cheering as at present. In union there is strength; but, unfortunately, in years past, the value of this trite adage has not seemed to be duly appreciated among us. The platform of principles now presented to the world, among the doings of the Association, is believed to be unex-

ceptionable in doctrine, and to commend itself to the good sense of all whose medical views are elevated and enlightened. It embodies the teachings of true science. It will henceforth serve as a correct chart to guide the medical mariner safe over that sea of darkness and danger on which multitudes have hitherto made fatal shipwreck. Substantially the same principles, it is true, have been propagated before ; but not in so compact a form, nor under circumstances so well adapted to commend them to the faith of enlightened minds.

Of the various Reform Medical Institutions now existing in the different States, the teachings of almost all are, at present, in most delightful harmony. The only exceptions are now found in the College at Macon, Ga., and in the School established by Dr. Curtis, at Cincinnati, Ohio, under the charter of the "Cincinnati Literary and Scientific Institute," after the medical department of the College, as it had been originally incorporated, was, by Legislative enactment, separated, and made a distinct and independent Institution. Truth is great and will prevail ; but whether these latter Schools will, ere long, liberalize and elevate their teachings, so as to accord with the principles of inflexible truth, or whether they will continue to advocate an unphilosophical and mere *routine* practice, and stubbornly await the withering effects which error must experience, it remains for time to reveal.

The early reformers taught, that fever and inflammation are the same thing, and are sanative efforts of nature, to remove from the system obstructions to the natural functions. They further taught, as a prominent dogma, that disease is a unit, or that all diseases are identical. Dr. W. Beach, refining a little on the absurdity of these crude notions, says, not only that "disease is a unit, but that it is a salutary effort of nature to repair an injury to the system, or re-establish health." And to impress the idea still more strongly, he adds, "What is termed disease appears, in reality, to be nothing more than an inherent principle, in the system, to restore healthy action, or

to resist offending causes." Often has the anxious voyager, along the coast of scientific research, been engulfed in a moral Charybdis, through the excess of his solicitude to escape being wrecked on the rocks of Scylla. When Thomson and his early adherents saw how wretchedly fevers and other maladies were treated by the profession generally, instead of carefully acquainting themselves with the pathology of all disease and accurately discriminating between the true and the erroneous in doctrine, they hastily concluded, that all perils lay on Scylla's side, and they inconsiderately rushed to the opposing fatal vortex.

At the present time, comparatively few reformers are willing to enter so ignorantly on the practice of medicine,—thereby jeopardizing their own reputation and the lives of their patients. The true principles of professional science, when understood, will always guide unerringly in the middle path of safety. The embodiment of these principles is the system of medical Eclecticism; and hence, this system should be, to the greatest possible extent, understood, and practically applied. It is now late in the day of scientific research, for ignorance to be tolerated in our ranks. We have started right, friends. Let us go on with all speed,—adding to our attainments in medical truth. Remembering that, "as iron sharpeneth iron, so a man sharpeneth the countenance of his friend," let us afford such mutual aid as shall rapidly hasten our elevation to that culminating point from which, as a body, we shall shed the most benign influence upon suffering humanity.

Every State should have a general organization efficiently sustained; and subordinate to this should be such local or district Societies as can, with convenience, assemble quarterly for the discussion of unsettled medical topics and for the adoption of every means of mutual improvement. See to it, then, friends of the cause, that, during the current year, you discharge the duties attached to these several relations; and as many of you as can, on the second Tuesday of May, 1853,

come together, at Philadelphia, to rehearse your experiences, to instruct and encourage the National Association, and to help forward that cause of common philanthropy, which is dearer to the heart of genuine benevolence, than ease, emolument, and even earthly comfort.

ORIN DAVIS,
CALVIN NEWTON, } *Committee.*
A. D. SKELLENGER, }

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. Other names might be added, but they are not now in the hands of the Committee of Publication.

The Committee beg leave to suggest to such members as have not paid their dues for the current year, that the same would prove of much service at the present time. The funds so collected, and to be collected, will be applied on contingent expenses of the publication of the Transactions, and any surplus that may remain, will be reserved to meet expenses for the like or other objects, at the next Annual Convention.

Members sending their dues (one dollar) to the Chairman of the Committee on Publication, will be entitled to a copy of the Transactions for the current year.

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* Report E came too late for insertion in its proper order. It stands as I in the list. Report F not received.

CENTRAL MEDICAL COLLEGE

ROCHESTER, N. Y.

WINTER SESSION.

The next annual course of Lectures in this Institution will commence on the first Monday in November 1852, and will continue sixteen weeks.

From that portion of the Profession among whom the labors of the Faculty of this Institution have been cast, and who have had an opportunity of judging of its merits, the most cheering assurances are constantly received, of approbation upon its past course, and support in its future career. If this School lives in the future, it must be by the *merit of its teachings*, and the *genuine value of its Diplomas*. Its classes heretofore have been large; and they have sustained a high character for social worth, general information, and thoroughness of professional qualifications. Its teachings will recognize neither the crude and ignorant notion of physiological and perfectly sanative medicines,—nor the barbarous use of actively disorganizing and permanently morbid agencies for purposes of cure.

Central Medical College is located in the city of Rochester, which from its eligible position, convenience of access, large population, wealth and morality, must be acknowledged as the most desirable location in the State. In consequence of the number of ladies who have attended during the last four terms, and at the request of others who propose attending in future, the Board of Trustees have established a Female Department, which is in charge of Mrs. L. N. Fowler, M. D., whose scientific acquirements, and medical teachings, have obtained for her, a wide-spread and merited popularity.

A new, complete, and much more eligible suit of College Rooms has been secured for the coming Session. Ample provisions in the way of Apparatus, &c., have been made. The supply of Anatomical material is always abundant, and strict attention is paid to Dissections, and operations upon the *cadaver*. The weekly Clinic is well sustained, and highly profitable to the student.

FEEs.—Aggregate cost of Professors' Tickets, \$60; Demonstrator's Fee, \$5; Matriculation Fee, \$5; Graduation Fee, \$15. Good board can be obtained at \$2 and \$2.25 per week. Graduates of Medicine in reputable colleges, Clergymen and Theological Students, will be admitted to the Lectures on the payment of the Matriculation Fee. Students are advised to furnish themselves with text books, old School works as well as Reform publications. All will be consulted *eclectically*. For further information address

WM. W. HADLEY,

Dean of the Faculty, Rochester, N. Y.

SECOND ANNUAL COURSE

OF THE

ECLECTIC MEDICAL COLLEGE OF PENNSYLVANIA.

The third week in October next, will be commenced the Introductory Lectures of the Second Annual term of the above Institution. The Trustees and Faculty are happy in being able to announce to the Profession, that the

doubts and fears attendant upon the organization of all new Institutions, have passed, and they are now in the full assurance of future prosperity.

The course adopted and pursued by the Faculty, is, that of bringing the *rationality of all systems to the view of the student*—advising the use of all healthful medicaments, and utterly discarding those agents which have a tendency to disorganize the living tissue,—among the articles we *never* recommend, may be mentioned, Calomel, or Mercury in any of its varied forms; *Arsenic, Antimony, Strychnine, &c.*

The above Institution holds but one session yearly, [*a four month's Course*] and it requires that each student shall study medicine three years;—and attend twofull courses of Medical Lectures, the last of which must certainly be in this College, before being admitted for examination for the degree of *Doctor of Medicine*. A fair English education, and *good moral character*, are *pre-requisites* for admission—and each student is to depend upon his *own intrinsic merits*, in becoming a candidate for the *honors* of the Eclectic Medical College of Pennsylvania.

The College accommodations will be in every way convenient and comfortable. The Dissecting Rooms will be open 1st October, under the direction of the Professor of Anatomy. All the Chairs will be amply supplied with Paintings, Drawings, Specimens, Preparations, Manakins, Illustrations, &c. The united energies of the Professors, will, each successive day, be renewed, to prepare their students in the benign cause of *True Medical Reformation*.

Terms—Matriculating Fee—Five Dollars. Tickets for the Professors. (six in number,) Twelve Dollars each. Dissecting Ticket—Five Dollars. Diploma Fee—Twenty-five Dollars,

Our invitation extends to all. Students who may favor us with their presence will be kindly received, and fully advised as to their comforts in boarding, &c. Board may be had from \$2.50 to \$3.00 per week.

To those desiring further, or special information, it will be readily and cheerfully given, by addressing the Dean of the Faculty,

THOMAS COOKE, M. D.,

No. 31, North Sixth Street, Philadelphia, Pa.

PHILADELPHIA, June, 1852.

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R. D. KELLOGG,

ECLECTIC MEDICAL JOURNAL.

CONDUCTED BY

JOSEPH R. BUCHANAN, M. D.,

Professor of Physiology and Institutes of Medicine in the Eclectic Medical Institute of Cincinnati, and

R. S. NEWTON, M. D.,

Professor of Surgery, in the Eclectic Medical Institute of Cincinnati.

Is published monthly in numbers of 48 pages, with a cover, at the rate of two dollars per annum in advance. The Journal is devoted to the general cultivation of Medical Science—the accumulation of useful practical matter, and the advocacy of the most enlarged and liberal views of Medical Science. It will be published hereafter strictly on the cash principle. A liberal allowance will be made to agents.

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BY JOHN KING, M. D.,

Prof. of Obstetrics and Diseases of Women and Children, in the Cincinnati Eclectic Medical Institute, formerly Prof. of Materia Medica, Therapeutics and Medical Jurisprudence in the Memphis Institute, &c., and

ROBERT S. NEWTON M. D.

Prof. of Surgery in the Cincinnati Eclectic Medical Institute; formerly Prof. of Surgery in the Memphis Institute, &c., &c.

Published by H. W. DERBY & CO., No. 145 Main street. 768 pp. \$3.50.

Authorized by the National Eclectic Medical Convention.

This work is divided into two parts; the first of which contains a brief history of the various medical agents employed in Eclectic Practice, together with their incompatibilities, properties, uses and doses, the second part contains the Eclectic Pharmacy, or an account of the many various officinal medical compounds, their preparations, properties, uses and doses; an appendix is also added in which will be found an explanation of terms and abbreviations used in medicine; tables of weights and measures, and other matter of much importance to both the Physician and Druggist. All the new Eclectic remedies, with their modes of preparation and doses are laid down in the work, and the index is full and copious; an excellent feature, and a want of which has long been experienced in the scientific and systematic arrangement of the medicines and their compounds, and to the perfection of which the authors have devoted much time and labor.

The attention of all physicians favorable to Eclecticism, as well as those druggists who prepare and vend Eclectic remedies, is especially called to this work, which will be found a correct book of reference in relation either to the kind of remedies employed by Eclectics in their uses, or their various compounds.

This work can be sent by mail (prepaid) for 40 cents under 500 miles, and 80 cents over this distance, it may be sent in some cases by express for less—address

R. S. NEWTON, M. D.

Cincinnati, Ohio.

This work may be had of the following persons at \$3 50 per copy. It can

be mailed from any point by pre-paying 40 cents, under five hundred miles, and 80 cents over that distance.

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A. A. Jones, Druggist, Poydras street, New Orleans La., and the trade generally.

ECLECTIC MEDICAL INSTITUTE OF CINCINNATI, OHIO.

*Chartered in 1845, Total No. of Matriculants from 1845 to
1852—1266.*

The winter session will commence on the first Monday of November, 1852. The course will be full and complete on each department.

FEES—Including Tuition, Matriculation and Dissecting, \$15. Graduation Fee, \$20.

The \$15 is required of all who enter the College.

Students upon their arrival in the city will call at the office of Prof. R. S. NEWTON, on Seventh-st., between Vine and Race. For further particulars, address Dr. R. S. NEWTON, or

JOS. R. BUCHANAN, M. D., *Dean.*

WORCESTER MEDICAL INSTITUTION. WORCESTER, MASS.

COURSE OF STUDY, ETC.

The course of study required by this Institution is intended to occupy three full years; and candidates for the regular degree of M. D., must have attended two full courses of Medical Lectures in some established Medical College, one of which must have been in this Institution. They must present satisfactory testimonials of good moral character; must have a competent literary education; and must well sustain an examination in the various branches of medical study as contained in our Course of Lectures, and in the text-books which we recommend, or equivalents.

The following are the members of the faculty :—

C. NEWTON, M. D., Professor of General and Special Pathology.

E. M. PARRITT, M. D., Professor of Chemistry and Medical Jurisprudence.

WALTER BURNHAM, M. D., Professor of Surgery and Obstetrics.

MICHAEL GABBERT, M. D., Professor of Theory and Practice.

G. W. MORROW, M. D., Professor of Anatomy and Physiology.

LEVI REUBEN, M. D., Professor of Materia Medica, (including Hydro-Therapeutics.)

The next Course of Lectures will commence on the first Thursday in March, 1853, and continue sixteen weeks. The fee for a full Course is \$60, in advance, with a matriculation fee of \$3. Ladies are cheerfully admitted to the classes of this Institution. Of those who have attended two full courses at other Medical Colleges, \$10 only are required. Graduates will be charged, in addition, \$18 for a Diploma. Good board can be had for \$2.25 per week.

The text books recommended are consulted *eclectically*;—*authoritatively*, indeed, so far as they are descriptive of actual conditions, as in Anatomy, Physiology, Pathology, and the like; but otherwise with careful discrimination,—the fundamental peculiarity of what is taught in this Institution, being, that there is no necessity for employing poisons of any kind as medicinal agents; and that the object in exhibiting any remedy, should be to sustain and not to depress the vital powers.

Quite extensive accessions have, of late, been made to the Anatomical and Chemical Apparatus, Library, &c. The Faculty of the Institution now constitute a full and eminently able Board of Instruction; and the facilities to be enjoyed by students are, in every way, ample. Dissections, surgical operations, illustrations and experiments, are conducted in the most advantageous and instructive manner.

As, however, it is the aim of the Trustees of this Institution to render it pre-eminent for advantages afforded, any donations in money, or preparations adapted to facilitate illustrative teaching, in any of the departments are respectfully and earnestly solicited.

The following are the authors recommended :—

On Anatomy—Morton, Wilson, Harrison, and Pancoast's Wistar.

On Surgery—Hill, Druitt, Liston, Castle and Pancoast.

On Physiology—Carpenter, Oliver, Kirkes and Paget.

On Pathology—Cromel and Williams.

On Materia Medica—Pereira, Wood & Bache, King & Newton, and Kost.

On Auscultation and Percussion—Gerhard and Bowditch.

On Theory and Practice—Howard, Mattson, Beach and Watson.

On the Institutes of Medicine—Gallup.

On Obstetrics, and Diseases peculiar to Women and Children—Beach, Churchill, Chailly and Maygrier.

On Medical Jurisprudence—Beck and Dean.

On Chemistry—Fownes, Gregory and Turner.

On Botany—Griffith, Gray, Wood, and Eaton.

C. NEWTON, Dean of the Faculty.

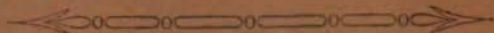
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Morton's, Gross', Wilson's, Sharpy & Quain's, Pancost's, Wistar's and Hassal's Microscopic Anatomy.

Mohr, Redwood & Proctor's Pharmacy.

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