

17 Baldwin (H.R.)

PRECISION IN DIAGNOSIS.

AN ESSAY

READ BEFORE THE

Medical Society of New Jersey,

AT ITS

ANNUAL MEETING,

MAY 25TH, 1875.

BY

H. R. BALDWIN, M. D.,

THIRD VICE-PRESIDENT.

Extracted from the Transactions of the Society.

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Gentlemen of the Medical Society of New Jersey:

Eight years ago I became the recipient of your favor in making me Treasurer of your Society. My thanks are due for this, as well as for the confidence shown in continuing to honor me with a re-election during these long years. In this official relation it has been my fortune to meet many of our profession throughout the State, and it is with pleasure that I can testify to their uniform courtesy and kindness. There is, however, additional reason for testifying to your good feeling. Upon my election as Treasurer the idea of accumulating a permanent fund, the interest of which would enable us to publish our transactions without default and without legislative aid, and at the same time lay but a slight imposition upon the several District Societies, was suggested. This was the goal of my ambition. Whatever of success may have attended this effort is entirely due to your kind co-operation and that of the gentlemen of the Standing Committee. Allow me to thank the profession for the noble manner in which they have seconded my desire. It is gratifying to know that I place in the hands of my successor a sum which is a fair nucleus for the future. Raised to my present position through your kind courtesy, allow me to tender again my hearty thanks for this renewed evidence of your esteem.

As third Vice-President of your Society, it becomes my duty to address you upon some theme connected with our professional duties. This seems to me a position not meant for forensic display, but by a few simple, kind words, to emulate each other to renewed diligence in the pursuit of our avocation, and perchance awaken a new desire for increased accuracy and more comprehensive views of disease and diseased action. I propose, then, to call your attention to a brief history of Diagnosis, and a few thoughts upon Precision in the same department of medicine.

Although it is highly probable that from the earliest ages there were persons who attempted the alleviation of human distress and suffering, and devoted themselves specifically to the healing art, still the conclusion is drawn more from the constitution of the human mind than from any well authenticated history. There is evidence that the Egyptians devoted much attention to medicine, for the knowledge possessed by the Grecians is acknowledged to have been obtained from this source. The centaur Chiron, who flourished in the thirteenth century before the Christian era, has obtained the credit of first instructing the Grecians in the art of medicine. Among his pupils was Æsculapius, who became more celebrated than his preceptor, so that after his death divine honors were paid to him, bulls and goats being offered in sacrifice.

From this period there seems to have been no material progress made in medical knowledge until the time of Pythagoras, who, although a philosopher and not a practitioner of medicine, devoted himself to the study of the anatomy and physiology of the human body. This was about the sixth century before the Christian era.

The Æsclepiadæ had, in the meantime, continued to perform cures, and were in general the repository of medical knowledge. Their practice was, however, almost entirely

empirical and based largely upon the superstitions of the age. About the middle of the fifth century before the Christian era we find the first distinct effort to reduce medicine to a scientific basis.

The great physician of Cos, by a series of careful observations and deductions, first elevated the art from its deceits and ignorance, and made attempts at Diagnosis. He defined diseases as epidemic, endemic and sporadic. He also noted the advent, height, decline and termination of disorders, and from marked tendencies in diseases to reach a climax on certain days deduced the idea of critical days. By a careful observation of the seasons, the temperature, and the phenomena of disease, he succeeded in opening the way to enlarged views and legitimate conclusions. There can be no doubt that the high and permanent reputation of this great man depended most largely upon his capacity of diagnosing disease, and the great sagacity of his prognosis. The deficiency of anatomical knowledge was, however, an insuperable barrier to a correct delineation of disease, and it is difficult for the practitioner of the present day to realize what uncertainties must have attended most of the explorations of the ancients.

About a century after the death of Hippocrates, the school of medicine, which had during this period been resident in Greece, was, in consequence of the establishment of the museum and library at Alexandria, transferred to Egypt. Among the disciples of this school were Erasistratus and Herophilus, who are said to be the first to have attained a knowledge of the anatomy of the human body by dissection. The bodies of criminals were given over to them for this purpose, and they ascertained new and important facts concerning the brain and the nerves, and are said to have discovered the valves of the heart. Herophilus paid particular attention to the pulse, which had heretofore received little notice.

About this period the medical world was divided into two sects—the dogmatists and the empirics. The dogmatists maintained that before we attempt to cure disease we are to make ourselves acquainted with the structure and functions of the body, of the changes which are produced in it by various morbid causes, and the influence of remedies in modifying or counteracting them. The empirics affirmed that experience, either derived from personal observation or dependent upon reliable testimony, is our only sure guide in practice. These latter views were earnestly supported by Serapion, of Alexandria, who is said to have been a pupil of Herophilus. From our standpoint we can easily see that neither were entirely correct, but that both reason and experience are to be diligently used in the exploration of disease.

It was nearly a century before Æsclepiades, of Bithynia, appears upon the theatre of action, who, although without regular medical education, was a man of acute perceptions, and established the division of acute and chronic diseases. Although many physicians of celebrity followed Æsclepiades, none contributed anything to the new development of diagnosis until the time of Galen, of Pergamus, who enjoyed advantages of birth and education, which enabled him to secure the most advanced ideas of medical science at that time. A man of profound convictions, he relied much upon his reason, and founded the sect of the humoralists. So great was the fame of Galen that for thirteen hundred years it was considered in the highest degree heterodox to question his views and teachings.

The advent of Mahomet, the spread of his theology, and the consequent wars, for a time absorbed science and scholastic pursuits; but about the eighth century of the Christian era the Saracens began to pay particular attention to medicine, and soon thereafter Rhages particularly

studied cutaneous disorders, and his description of small-pox is still extant and familiar to many here present.

From this time forward until the middle of the fifteenth century a darkness most profound reigned in the human mind; but the discovery of the art of printing at this period lent a new impulse to all investigations, and at about the middle of the sixteenth century Vesalius, availing himself of the spirit of inquiry which had been awakened, paid a stricter attention to anatomy, which had lain somewhat dormant since the time of Galen, and added largely to the researches in this branch of medicine which are so necessary to an investigation of morbid changes in either the fluids or solids of the body.

We cannot at this period fail to recognize the influence of the principles laid down by Bacon in the development of truth. Although not a physician, he taught us how to use the facts already known, and in what manner to draw deductions from stated premises.

The discovery of the circulation of the blood, by William Harvey, and his published treatise in the year 1628, cannot be forgotten as marking an era in the development of facilities for diagnosis such as the world were before ignorant of. An exactness and certainty were acquired regarding all physiological as well as pathological researches, the advantages of which cannot be over-estimated. Although at this period there was an attempt to introduce mechanics as bearing upon medical opinions by a sect of mathematical physicians, prominent among whom stands Bellini, of Florence, yet the opinions were fanciful, and cannot be said to have proved serviceable in the research after truth.

The great Stahl, who was a native of Germany, and an independent thinker, and who devoted himself especially to chemistry, soon perceived that the changes which the fluids undergo in the body were completely unlike what

they would have experienced if placed in ordinary circumstances. As it was well known that substances similar to those which constitute the body rapidly tend to dissolution, he therefore concluded that when forming a part of the organism they must be possessed of some force or principle to counteract the effects which would otherwise have been produced. This principle he called *anima*, and believed it to possess peculiar qualities distinct from those which belong to matter. In fact, it was this that gave to the body all those properties which are strictly denominated vital.

Following Stahl, about the middle of the seventeenth century, Hoffman promulgated new views in pathology, among which was the assertion that, in many instances, the causes of disease may be more easily traced to some affection of the solids than to any alteration in the fluids of the body. He endeavored to explain this view by introducing the operation of what he called spasm or atony, according to which the moving fibre is endued with a certain action or tone which constitutes its healthy state, which may be morbidly increased, causing spasm, or diminished, giving rise to atony. He also recognized the nervous system as being intimately connected with the production of disease.

From the middle of the eighteenth century, scholastic disputation was entirely disregarded, and the exertions which were previously directed to the accumulation of learning were now bestowed on the acquisition of knowledge. Before this period the whole medical world were divided into two or three sects, and it was thought to be absolutely essential for every one to attach himself to one or the other of these schools. But from this time observation and experiment were diligently pursued, and the mind, casting off the influence of the theories of the past and of the great names which had supported them, assumed an inde-

pendence and self-reliance which materially aided the progress of inquiry.

Men of genius and sagacity, such as Boerhaave, Cullen, Brown, Whyatt and Bichat, each in their respective departments contributed much to the advance of medical knowledge, either by speculations, which awakened interest, or by the substantial results of laborious research.

It will thus be seen how slow and tedious have been the developments of knowledge. The labors of centuries and the lives of a thousand generations have been necessary to clear away the obscurities of ignorance—observations and experience recorded and corrected—theoretical teaching insisted upon and abandoned. The best thoughts of eminent medical men not only, but philosophy and philosophers, have all added much to our present enlarged and splendid opportunities for forming correct opinions and engaging in successful practice. This, then, is the heirloom of the past. We may now be said to have arrived at the golden period in the history of medicine, and it will not be improper for us to consider our duty as diagnosticians, under these circumstances.

Before attempting to set forth the duty of the practitioner, it will be well for us to remember that early in the present century Magendie had, by his brilliant experiments, shed a flood of light upon physiology; that Sir Charles Bell had explained the operations of the nervous system; that Laennec had made known his views on mediate auscultation and the use of the stethoscope; that later, Marshal Hall had promulgated his views of reflex action; and that Brown Sequard has amplified and perfected our notions regarding nervous force.

These, with the multitudinous facts and facilities which have thrust themselves upon the medical public, place the practitioner in a position to acquire a degree of accuracy which is truly remarkable. It seems, then, with all the

advantages of the experience of the past, and the wonderful improvements of the present, the physician is inexcusable if he fails to make his diagnosis with extreme exactness. This duty will perhaps be more evident if we consider what precision or exactness of diagnosis comprises.

It is not only accuracy, but something more. It may be *accurate* to say that a man has pleuritis, if upon examination of the chest we find the ordinary signs indicative of that affection; but it is *precise* to be able to follow the case further—to search out the *cause* of the inflammation—to be able to define that some toxic influence pervading the blood (it may be pus, or urea, or some other agent) so operates upon the nerve centres as to cause such aberration of function as results in derangement of healthy action.

By a precision in diagnosis, then, is meant the enucleation of the diseased condition, following it up to its hidden sources and ascertaining its relation to the whole economy. The physician is driven to this position by a number of considerations. Many of these may be purely selfish—such as ease of conscience, sound sleep, pecuniary advantage—but there are other reasons as far superior to self as humanity is above the individual, as the mental is above the physical. The responsibility of life in his hands, the welfare of families, the desire to prevent severance of the dearest ties, and the exultant satisfaction of a successful result, all prove the absolute necessity of precision in dealing with disease. Scarcely less imperative are the demands of his professional *esprit de corps*. No profession can have ultimate respectability where its votaries disregard those elements which are necessary to its future exaltation. It therefore follows that all avenues of knowledge must be diligently sought—all means available employed—to render our knowledge as perfect as is possible for the finite intelligence to accomplish. The haphazard prescription of the charlatan fails to secure to himself lasting reputation, from the lack of precise

knowledge. The efforts of painstaking and industrious physicians also sometimes fail, because, even with all his acquirements, he is denied precise knowledge, either from the recondite nature of the disease or from some other circumstance. How is it possible for one to fulfill the conditions requisite for the removal of morbid action, if the diseased condition is not fully known to him? The relations of the physician to the public also render it proper for him to be able to sustain his profession at all times. He must not only satisfy his own mind and conscience, but he must be ready to give an intelligent explanation of the faith that is in him to an inquiring public; for, let me remark, the time for doctors to look wise and shake their heads has passed away. The public, a reading and wide-awake public, demand from the profession both a satisfaction of the intellect and a conviction of the judgment. The humanity of the profession also cries loudly to us for exactness in our knowledge. Is there an aroma in the parable of the good Samaritan, as related by our Divine Master, the fragrance of which the lapse of time has only served to render more lasting? Is there anything ennobling in the alleviation of suffering, in the extension of joy, in the obliteration of woe, in the promotion of that cementing bond of brotherhood, which is, or should be, felt wherever the foot of man has found its way? Then is it proper that our profession should not be wanting in that exactness in our dealings with men which will secure these ends. The necessity of our cultivation of exactness will further appear from the want of it.

Now far be it from me to arraign a noble profession, (and one to which we have all shown our fealty by the devotion of our lives,) by detracting from its merits; but, as a matter of fact, the highest kindness is sometimes to probe the wound most deeply. Do we not find too often a lamentable want of exact knowledge in our general practice? It is

true that this sometimes occurs from the very desire to do good most quickly—to assuage pain before the causes are sufficiently elucidated; but I am afraid we must admit that sometimes carelessness can be laid at the door of the practitioner. A certain vagueness of expression, such as “it is a cold,” or “a little nervous,” “biliousness,” or “the liver is touched;” or the requisition of the diminutives, as “a little fever,” “a little pneumonia,” or, again, a grave assertion that “the patient has come near having typhoid fever.” Now all such expressions indicate the want of that exact knowledge which it is the duty of the prescriber to possess before he enters upon the responsible duty of writing a prescription, upon which may hang the life of a fellow being. I have seen a man laboring under acute nephritis, with urine loaded with albumen, and the stomach rejecting whatever was put into it, treated with the hypodermic syringe to quiet these warnings of nature, without even an attempt made to inquire into the source of these evidences of disordered nerve force. How common is it for the doctor, upon the application of the patient for relief from a dizzy head and a furred tongue, to give a dose of mercurial cathartic, when a day’s abstinence and rest would rectify the unpleasant symptoms.

We have already insisted upon exactitude in diagnosis, as the imperative duty of the practitioner. Let us now look for a moment at some of the factors necessary for acquiring this desirable end. They reside, first, in himself; and, secondly, in his surroundings. Of those resident in self, industry is all-important, and is the only sure road to knowledge; for, without persistent and pains-taking labor, recondite processes will never be discovered; the relation of certain parts of the organism to other parts will never be disclosed; the relative connection of healthy and morbid action will not be appreciated. As there is no royal road to fortune, so there is no permanent advance in

science, except by the entire absorption of self in mastering its intricacies. Independence is also a necessary adjunct to the searcher after truth. There must be no bias by the theories of the past; no undue truckling to authority; no pinning of the faith to the garments of another; but a fearless and exhausting search into all the facts which may be presented to the mind. Honesty to the patient and honesty to self, even to self-abnegation, are indispensable. The patient must have credit for all reliable statements. His case must be faithfully examined, and due weight given to all the subjective symptoms. The honesty to self must be such that any prejudice must be set aside; any preconceived notions, any mawkish sentimentality and desire to hide or cover up; hasty expressions given as snap judgment; any sensitiveness as to professional position; any or all of these must be sacrificed to thorough and searching deference to truth. The judgment, too, must be accurate, sifting the symptoms, giving their relative weight to each, and shutting out from view the fancies of the patient regarding his own condition, as he is in no position to form an unbiased opinion.

It happened to the writer once to find a patient suffering from cancer of the rectum, who insisted that he was perfectly well, and only needed a good dose of cathartic medicine, and who desired to go on a long journey to his ordinary avocation; when, upon inquiry, it was found that so great constipation existed that he could only walk with a straddling gait, and, upon further exploration, it was found that the contractions of the intestine were so forcible as to be visible through the external parietes. A skilled consultant christened the affection cirrhosis, but the autopsy revealed cancer of the rectum.

The knowledge necessary for a correct diagnostician embraces a variety of subjects. First, he must know human nature—the peculiar idiosyncracies which modify symp-

toms, give cast to character, and mould all the processes of thought, must be thoroughly understood. How frequently does the victim of hysteria palm off on the unsuspecting doctor a malady which exists only in a disordered innervation. An acquaintance with histories of diseases, climate, topography of country, malarial tendencies, modifying circumstances attending situation, as well as thorough knowledge of anatomy and physiological processes; the relation of the respiration to the circulation, of the digestion to the assimilative processes, and all again to the all-pervading governor, the nervous system. The means of attaining excellence or precision in diagnosis must be reached through this same avenue of knowledge also. The physical sciences come largely to our assistance in discriminating disease. Physical signs, through auscultation and percussion, are within the reach of every practitioner, and give such exact knowledge that mistake seems almost impossible. Thus an enlarged heart may be accurately measured; a cavity in the lung positively marked out; the gradual increase or diminution of pleuritic effusion detailed. Thus tumors, solid or fluid, may be defined, and by auscultatory percussion still more definite data obtained.

The scientific world, through the invention of instruments, have added largely to our facilities for diagnosis. It was only a few days since that being called to see a little patient, suffering with severe symptoms of enteric disease, I found valuable aid in this direction. The abdominal symptoms were relieved by treatment, the pulse fell in frequency, the temperature diminished to a healthy standard, but suddenly, without pain or dyspnoea or other symptom, save a slight hacking cough scarcely noticeable, the temperature rises to 103° —suspicion is awakened—the new lesion must be sought and found—and in twenty-four hours physical exploration reveals pneumonia.

I chanced to find within a brief period a young lady suffering with an imperfect vision ; together with this symptom was associated severe pain in the head and what might be termed a variety of neuralgic manifestations. A careful examination with the ophthalmoscope reveals neuro-retinitis, with atrophy of the optic disc. This, with the progress of disease and a partial paralysis of one side, enabled the accurate diagnosis of an intracranial tumor, which impinged upon the capacity of the optic nerve. The autopsy demonstrated the presence of a tumor as large as a pullet's egg, resting upon the medulla and cerebellum, and pressing forward upon the optic commissure.

Again, a patient being seized with severe vomiting, without derangement of the sensorial faculties, and with but few, if any, symptoms pointing toward cerebral lesion, except diplopia, is shown by the ophthalmoscope to be suffering from inordinate brain pressure. The post mortem shows a tumor lodged upon the petrous portion of the temporal bone, and finding its way up through the tentorium cerebelli.

Time would fail to enumerate the instances in which the microscope is of immense value. To say nothing of the advantages which obtain from its use in the investigation of renal, vesical, and gastric diseases, let me instance a case of convenience to the physician. The patient is taken with symptoms of abortion ; hemorrhage and pain mark its progress. The doctor is pestered to death with questions : "Is she quite through?" "Has everything come away?" How frequently is an evasive reply necessary ; but a suspected substance is placed under your glass ; the villosities of the chorion are seen. The patient is assured of her condition, and the doctor is restored to his self-respect.

Your patience would be exhausted by an enumeration of similar advantages which accrue from the comparatively recent introduction of scientific instruments By the laryn-

goscope we can define diseases of the larynx; the endoscope inspects the inner wall of the bladder; our sphygmograph writes the action of the heart; our dynamometer measures decreased muscular contraction and inferentially defective innervation; the æsthesiometer measures sensibility. Thus we see the immense resources at our command to give us exact knowledge. The physician of the present day has powers of which his predecessors could scarcely dream. The advances in medicine have been far greater than in the other learned professions, and its practice is being rapidly reduced to the condition of an exact science. Now the results of these acquirements must be immense upon the observer. They are manifested first upon himself, giving him confidence, assurance, almost certainty, in his hand-to-hand conflict with disease. It enables him to define positively, to act boldly, to prescribe fearlessly; or again to prognosticate with certainty the futile nature of all his efforts. Nor is the influence felt only by himself. Those with whom he is brought in contact feel the impulse, confidence, reliance, as it were, in a being of superior power, and intelligence springs up in their hearts, and his coming is looked for as if an angel's visit were at hand.

I have thus, in this brief resumé, endeavored, though feebly, to show the advantages of precise knowledge in medicine, and the benefits which result therefrom. Nor is this true only of medicine. In all departments of study, the value of exact knowledge cannot be over-estimated. It gives such force that men meet and overcome obstacles, which, to the careless, would be insurmountable. It gives that power which removes mountains, and it rapidly brings us to that state of perfection which raises humanity to a loftier standard, and reveals that for which the world has for centuries been striving—untrammelled truth.

