MEDICAL REFORM.

SOME GENERAL IDEAS

CONCERNING

MEDICAL REFORM.

BY

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Aber es ist leider von je her das Loos unserer Kunst gewesen, fast am spätesten unter allen Fächern des menslichen Wissens von dem wohlthätigen Strahlen der Aufklärung erhellt zu werden. — SPRENGEL, GESCHICHTE DER MEDICIN, Bd. II, s. 659.

"THE scientific works of Aristotle, of Avicenna, of Seneca, of Cicero, and other ancients, cannot be had without great cost; their principal works have not been translated into Latin," wrote Roger Bacon in the thirteenth century. The translations were already made, but they slept in the obscurity of manuscript, until, in the middle of the fifteenth century, Gutenburg furnished means that enabled the most needy scholar to possess a copy of the works of the honored masters.

The names of Chaucer, Dante, Wycliffe, Bacon, Petrarch, and Rienzi recall the character of the centuries preceding the discovery of printing and the period of the Reformation. In the history of medicine, the writings of Mundinus and Raymond Lully record the condition of our science in the ages preceding Vesalius and Paracelsus; and fossilized opinions have been discovered that connect their doctrines with the thoughts and opinions of Aristotle, Plato, Galen, and Hippocrates.

The Middle Ages bequeathed to the sixteenth century a strange inheritance. The memory of the crusades, of feudalism and chivalry, with their accompanying good and evil influences; an ignorance most dense, a superstition most intense; rights to be obtained by might, a literature almost worthless, — these were the endowments of the new age, called upon to exercise strange

and mighty engines of human progress. Printing, and the restoration of the arts and sciences, of which it was the handmaid; standing armies provided with fire-arms; the discovery of America and the sea-way to the East, with the great and inevitable changes in the material possessions of the people of Europe which they caused, — were more than sufficient to tax to the extreme the powers of the new era.

It cannot be uninteresting to the physician to consider what wide spread and far-reaching influences were working upon the physical system of mankind in this age of awakening. The black death, the pests, the nervous epidemics of the Middle Ages were gloomy phantoms that threatened the inhabitants of Europe in the sixteenth century, — phantoms that the sweating sickness and the numerous epidemic disorders then prevalent made more real. Our minds naturally revert to those whose physical ailments seem to have stimulated them to greater mental activity, in considering the marvellous intellectual phenomena of the succeeding age, which Lowell so admirably describes in the following extract: —

"Not to speak of science, of Galileo and Kepler, the sixteenth century was a spendthrift of literary genius. An attack of immortality in a family might have been looked for then as scarlet fever would be now. Montaigne, Tasso, and Cervantes were born within fourteen years of each other; and in England, while Spenser was still delving over the *propria quæ maribus*, and Raleigh launching paper navies, Shakespeare was stretching his baby hands for the moon, and the little Bacon, chewing on his coral, had discovered that impenetrability was one quality of matter. It almost takes one's breath away to think that 'Hamlet' and the 'Novum Organon' were at the risk of teething and measles at the same time."

It was in this age that medicine underwent that great change from which her modern history is to be dated; it was then that she shook off the stupor of scholasticism and began her toilsome, unsteady march, — a march of conquest for the most part, but one in which many useless burdens have retarded her freest progress, and where many devious by-ways threatened to bring us into interminable wildernesses. The course still lies far beyond, the horizon only bounds our vision. The distant, purple hills are steep and rugged, and the smiling plain is dry and barren. Each is fraught with its peculiar dangers, and it is with a view of meeting these that we study the history of the journey already accomplished. The country may seem strange to one who has not reviewed the past, or to one who compares the morning and evening of a day; yet, by examining the chronicles with care, we shall find that our fathers struggled with similar obstacles to those which obstruct our progress in the present day. The records of their failures and successes are a precious heritage, at present strangely undervalued. Let us hope that the time is not far distant when the broken circle of medical education shall have added this segment of medical history toward its completion.

In sketching the evolution of medical doctrines, we naturally commence with Paracelsus, the great medical reformer, the Luther of the healing art. Vesalius left a much richer store of facts, but Paracelsus far excelled him in awakening the progressive spirit that has characterized modern medicine. They represent types as old as the history of civilization, the types that have been embodied in the philosophies of Aristotle and Plato. Aristotle was a methodical collator of facts; his painstaking, thorough observation has been and will be the model for the scientific

student; the realm of nature was his working ground; he did not lose himself in speculation concerning matters beyond the reach of his reason. Plato, on the other hand, being of a more imaginative temperament, with greater genius, saw all phenomena through a poetic mist, and lost himself in the contemplation of natural and supernatural things without troubling himself as to the exact outline of objects he merged in his roseate unity. The Arabians naturally embraced the Platonic philosophy, and gave his system to the Middle Ages, intensified in many respects by the Jewish theosophy which they had combined with it; man and nature, God and heaven, were united in one continuous chain along which supernatural influences were continually flowing down upon this world.

Vesalius was a logical, close student, naturally inclined to follow authorities, but resolute in obeying the dictates of his own reason when once they were established. It took him a long while to discover that Galen was fallible; but having done so, his sound conservatism prevented him from flying to the unhealthy extreme of selfish, egotistical scepticism. He carefully pursued his studies in the unexplored domain, as the cautious navigator feels his way in unknown seas, making additions each day to the chart that should enable future navigators to sail fearlessly where he was continually threatened with hidden dangers [1]

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[1] It seems to me that we do not generally overestimate the merits of Vesalius, though Daremberg (*Histoire des Sciences Médicales*, Paris, 1870) seems to think that we do. Haeser's statement (*Jahresbericht des Gesammt. Med.*, 1867, p. 362) that the plates in the works of Vesalius would alone render them immortal, seems to me to be literal truth. One cannot inspect a great number of pre-Vesalian anatomical plates without strongly realizing this judgment of Haeser's; but the spirit in which we judge such work makes all the difference. Daremberg, throughout the modern portion of his

Vesalius embodied the reform in anatomy as Luther embodied the idea of church reform. Both have deserved the reverence of posterity, not perhaps for their absolute greatness, but for their having been the *representatives of the race* in their respective places. More learning and less superstition may have been combined in others; Colet and Erasmus may have excelled Luther in some particulars, Fallopius and Columbus may have excelled Vesalius in some respects. A small erudition may be exerted in endeavoring to prove such superiority, in convincing the other eleven of the jury; but the facts still stand, and every man knows that Luther gave the Bible to the people, and Vesalius the most artistic, correct anatomy to our profession.

Paracelsus was an imaginative, erratic being. Much of his knowledge was acquired by direct contact with nature; few of the thorough-bred schoolmen of his day could have matched him in the peculiar knowledge that he had acquired. In his journeyings through Europe he had met with doctors and midwives, with miners and botanists, with strange geniuses of all kinds and of all countries. His naturally imaginative temperament was stimulated by his method of study and by his previous training in alchemy and astrology. He studied the world by the light of his time; and we have seen that the age was one little calculated to restrain the ardor of his imaginative faculties. To him the world was a great being; its *archeus* was directing mysterious

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history, exhibits but little of the true spirit of the historian; he seems to be unable to investigate the work which he criticises except in the light of the present; the theories of Paracelsus and Van Helmont affect him as the doctrines of the irregular practitioner affect the full-blown regular, "J'ai pu au moins m'indigner contre Paracelse et m'irriter contre Van Helmont; quelque chose me soutenait, m'excitait; mais Sylvius est d'une monotonie désesperante." (Vol. I, p. 570.)

processes in its vitals; in man, the microcosm, the *archeus* was directing the very same forces. Mercury (spirit), sulphur (vital force), and salt (material) united to form all the several parts in the macrocosm and microcosm. Had he not seen vegetables that had put off the vegetable nature of sulphur and taken the mineral nature? Did he not know of an analogous process in man, by which those mineral concretions were produced that were so often the cause of suffering and death? How did such facts appear to him in the light of the mystical religion of his time? Did not God transplant these elements in the tree of life into Adam, and afterwards into Christ, the life; and thus by the very tree, the mystical tree of life, did he not redeem mankind by the identical means by which it had fallen? Did he not thus mysteriously make the sign of destruction the sign of salvation? Christ was crucified on the wood of this tree, and a more glorious type of resurrection is thus given to the very means by which man fell. It is surprising to find in his works, obscured by the strange vocabulary that he coined to express the fancies that crowded his brain, some of the most acute observations of his time; yet no writer before Paracelsus, and for some time after him, made more enlightened observations as to practice than he. His writings on syphilis and on ulcers exhibit numerous proofs of this statement. The surprise is lessened, however, when we remember the quick, almost intuitive perception of men of this class. Vesalius gathered and ordered by principles, which served as strings for his jewels of facts. Paracelsus threw his jewels carelessly together, and delighted only in the kaleidoscopic figures which his genius evoked from them.

There is not much difficulty in summing up the benefits which Paracelsus conferred upon medicine, but there has been consid-

erable trouble in obtaining a recognition of them. No candid student can doubt the correctness of the view so steadfastly maintained by modern German medical historians, that he deserves an eminent position amongst the leaders of the healing art. His personal *archeus* meant to him what is now often loosely spoken of as "the soul," and at least enabled him to form a conception of man as an organism, the laws of whose functions and changes constitute what we now know as physiology. He founded modern chemistry, or rather by his experiments he separated a branch from alchemy that contained sufficient vitality to become that noble science. His brave, original and independent spirit was evinced in his theology and in that Swiss-German love of fatherland and liberty that gave him courage to join in that noblest crusade of the Renaissance, which resulted in securing for the German people their mother-tongue. He gave a severe blow to that scholasticism that lingered in medicine, so long after modern research had begun to assert its own worth. As to the reputation of Paracelsus as *a healer*, I know of no more solid and trustworthy testimony than that of the great founder of the natural sciences, Conrad Gesner, who, though his enemy, does not hesitate to record the fame of his cures.

We shall see that physiology, originated by Paracelsus, retained the impress of his mind for centuries. We shall find it a stream obeying the uncertain source of its supply, now almost dry and now spreading far beyond its banks, until, in Harvey's time, reinforced by the steady current flowing from the anatomical studies of Vesalius and his successors, it moves steadily on its course ; although in the broad, strong river that represents the experimental physiology of to-day, traces of various impurities may still be discerned.

To appreciate the medical theories of the sixteenth century it is necessary to remember the condition of human knowledge at that time. There was then no scientific knowledge, judged by the laws which many modern medical historians have employed. Gesner and the natural historians of the age gravely described monsters that were evidently evolved from their own consciousness, or, what was more frequently the case, borrowed from apocryphal authorities. History had not yet become the dignified, truthful matron who serves us to-day, but was giddy or stupid as occasion served. Art had not been settled upon the scientific foundation upon which it is beginning to rest its fair proportions. All was confusion; the old order had vanished and the new was just emerging from its ruins. In this condition of affairs, the death of Paracelsus left his doctrines to be divided, distorted, and obscured, by men who could not, or would not, understand them. His theological tendencies were exaggerated by that strange sect, the Rosicrucians, which, born in a satire, lived and died a satire upon the idea of the union of priest and doctor; his chemical ideas were brought to a still more ridiculous extreme by those who endeavored to develop the vices inherent in the youthful science into an independent system; and the mist in which all his ideas were clothed gave rise to the most vague and distorted imaginings of a Fludd, a Digby, and a Thurneisser. It was not until Van Helmont's time that a man arose capable of comprehending the opinions of Paracelsus as a whole, and of embodying with them sufficient of new truth to give them their former power.

While these fancies were occupying so much of the attention of the medical world, the work of observation and experiment, which Vesalius had initiated so nobly, was ably continued by

those anatomists whose names, attached to their discoveries, are as familiar as household words to the student of anatomy, — Eustachius, Fallopius, Sylvius, Fabricius ab Aquapendente, Ingrassias, Aranzi; and their great contemporaries prepared the way for the epochal discoveries of Harvey and Aselli, — discoveries which gave an entirely new character to physiology. The names of Pecquet, Bartholin, Malpighi, Wharton, De Graaf, Highmore, Casserius, Valsalva, and Willis recall the brilliancy of this new physiology of the seventeenth century, that era in which Swammerdam, Malpighi, Grew, and Leeuwenhoek discovered a new territory that is now being cleared and mapped out for future building.

Van Helmont was in many respects directly the reverse of Paracelsus. He was a scholar in the old acceptation of the term, and possessed many mental characteristics of the previous age, in which scientific research was unknown. One point in his life is very suggestive. When he discovered errors in Galen's teaching, he was not, like Vesalius, excited to closer and more critical study: upon discovering the weakness of his support, he grasps wildly for new aid. There is no clear examination, no inquiry as to how superficial the blemishes may be: to him a new revelation is necessary. He finds much that is congenial in the doctrines of Paracelsus. The *archeus* expressed a something that he could neither define nor examine; and this heavenly part of man was relieved of the coarser functions of vegetable life by a new creation, a *duumvirat*, an individualization of the sulphur of Paracelsus. Chemistry must furnish him with an universal remedy; and the dream of Paracelsus became the object of his life for thirty years. Van Helmont lived amid circumstances very different from those which surrounded Paracelsus. The first half

of the sixteenth century, the age of Rabelais, was almost a waste, as far as observation was concerned. Rhazes, Avicenna, Galen, and Hippocrates, and their Arabian and classical companions, were strange rulers for the time, but they were tyrants, against whom Paracelsus conducted his warfare. Van Helmout was born after the new learning was quite established. While he was shut in his laboratory, Harvey and Aselli, working on a sounder method, had made their precious discoveries. Paracelsus, therefore, was able to do an immense service for science by strengthening the hands of those who were attacking ancient errors and building new truths. Van Helmont merely left the new science of chemistry rather more developed. Both left practical medicine somewhat stronger, though they often involved their followers in wanderings that led away from the path that should have been pursued.

The revolution in physiology, heralded by the discovery of Harvey, was nearly coincident with a still greater revolution in the intellectual world. The irregular warfare which had been waged for a century against scholasticism was now to become the campaign of a regular army, of which Galileo and the Accademia del Cimento, Bacon and Boyle, and the Royal Society, Des Cartes, and the Royal Society of France, and the Imperial Society of Germany, were so many grand divisions.

Under the influences thus established, it was natural that medicine should become powerfully affected. Nothing could have been more antagonistic to the mystical, idealistic philosophy of the previous age than the materialistic element inaugurated in the seventeenth century. Des Cartes, perhaps, exercised the greatest immediate influence upon medicine, for the healthy teachings of Bacon were not so readily followed. Sydenham and

Boyle give us an idea of what might have resulted if the profession had realized their importance; but they pointed to a more arduous way, one which required a more intelligent conception of professional needs than was at that time generally possessed. With Des Cartes it was no longer necessary to conceive of a *duumvirat* that should be an intelligence for the secreting glands. Was it not perfectly natural that like atoms should pass through like pores? And what was more easily conceivable than that each organ should have pores of a certain shape? Even the higher function of memory might be mechanically explained; for how natural the conception that some pore of the brain, through which the soul from its throne in the pineal gland had once sent a thought, should, upon reopening, give rise to the same thought again? The works of Sanctorius prove that Des Cartes' philosophy was the tangible expression of a movement that had already commenced in medicine, one which Borelli was soon to bring to its full development in the iatro-mathematical school; notwithstanding the learning of Sylvius and Willis, the Harvey of the nervous system, the chemical doctrines which had ruled the medical world since the days of Paracelsus were obliged to succumb, the practical fruits of Galileo's teachings were becoming too numerous to allow the spagyrists to continue their sway. The water-works at Versailles, the aqueducts of London, Hook's improvements of the microscope, Boyle's experimental researches, the discovery of the circulation, of the lymphatics, and of the thoracic duct, were the signs of that current that was too powerful to be withstood. We can imagine the confidence with which the teacher fresh from the perusal of an account of the grand fountains at Chatsworth would teach the new truths of the circulation. It is scarcely to be wondered at

that, dazzled by the new light, he was blinded to the essential difference in the causation of the phenomena.

I need but mention the names of Pitcairn, the teacher of Boerhaave, Cole, Keill, Whytt, Friend, Mead, Quincy, Wintringham, to recall an idea of the strength and ability that supported these doctrines. Everything was favorable to the new materialism. Fludd and the younger Van Helmont were hardly to be recognized as opponents; they led no party, but merely organized a mob of those who could find no rest in the prevailing schools. No period in the history of medicine is richer than this in sound instruction. Cole and Whytt and their contemporaries were learned, brilliant, self-confident; they relied upon their science, and had a profound contempt for everything not embraced in it; their foundation was mathematics, and they knew that its truths were eternal: yet it is a question if they were not as far removed from a sound method of study as the despised Fludd. It is possible to crawl as well as to fly from the right path: the tedious wanderings of the mathematicians were just as much deviations as the imaginative flights of the idealists. The science of medicine was advanced by the observers, those whose names are not prominent as theorists. Ruysch, Spigelius, De Graaf, Peyer, Morgagni, and, more than all, the great Sydenham, illustrate the wisdom of those Baconian precepts that now form, as well as they did at that time, the only safe rules for the guidance of the student of science. From the outside, the work of observation seems dull and commonplace: it is like looking at a stained-glass window from without: within the temple the appearance is different, the sun of truth glorifies the most humble offering to science.

Early in the seventeenth century, Glisson had conceived of a

most important attribute of tissue, by means of which they exercised their functions independently of any force which the iatro-mathematical school had applied to the machine, man. Sprengel wondered that a fact of such importance could have been overlooked; but it seems that Glisson had rather an uncertain idea of what was meant by the term "irritability," and he made no demonstration that excited interest in his doctrine. He seems, like Willis, to have had the old mystery in view, but perhaps went a step beyond him in making the *archeus* an abstraction. This same idea influenced Hoffman in forming a doctrine that recognized the dynamics of physiology, and at the same time marks the commencement of the reaction against the prevalent iatro-mathematical school. It is always the case that tyranny breeds a revolt. We can pass to the consummation of this one in the person of Stahl, in whom the reaction reaches its extreme limit; it is the age of Swedenborg; the pendulum completes its swing. In studying the system of Stahl, in which the intelligent soul conducts perpetual warfare against pernicious invading diseases, we seem to have traversed a circle that has led us round again to the sixteenth century. Now, as then, an intelligent divine something exercises itself in behalf of our organism, and a halo of divinity sanctifies our ignorance. It was difficult to answer Stahl's assertion that the *material* of which man was formed could exercise no force, and that, consequently, the soul was the source of all force; it was impossible to ask concerning the *soul* that caused the beating of the heart after its removal from the body, or an iris to respond to the stimulus of light after it had been removed from the eye, or that sustained the regular contraction of the embryo's heart for some minutes after its removal from the dead body of its mother.

Leaving Stahl's animism to the author of "Disease: A Part of the Plan of Creation," who discovers God's thoughts in the results of malarial poisoning, let us hasten to the time when Haller made it possible for us to study man without resorting, on the one hand, to a coarse, mechanical conception of the beautiful organism, or, on the other hand, without losing ourselves in a boundless ocean of theosophy. Haller was one of the most learned and industrious physicians that ever graced our science. He shows in many points the influence of his teacher Boerhaave, the same eagerness in scientific pursuits, the same love of medical bibliography, and a still greater power of observation. What student of medical history has been able to do without Haller's bibliography? What physiologist has not wondered at his physiology?[1] What anatomist is there that has not been delighted with the beautiful plates of the "Icones Anatomicæ"? What botanist that has not praised the thoroughness of the "Stirpium Helvetiæ"? And crowning all was his genius as essayist and poet, that perhaps influences our own Holmes in his warm admiration of this great physician. It was Haller that thus made the physiology of to-day possible; it was he that by experiment demonstrated and named the force which, resident in tissue, disappeared only with its disorganization. Cullen first appreciated the practical importance of this grand discovery of irritability by Haller. The old humoral pathology had held unlimited sway; medicines

[1] Rudolphi says, "If all authors of physiological works should be asked which work on the subject they held for first, no one could find fault if they answered their own. If they were further questioned as to which they held second, I am convinced that all, without exception, would name Haller's Physiology. But what appears to all authors the second is surely the first." — HAESER, *Lehrbuch der Geschichte der Medicin*, p. 618.

had been dry and moist and capable of purging the system of bad humors; even the scientific materialists of the eighteenth century did not give up the humoral doctrines. The first postulate in Quincey's "Pralectiones Pharmaceuticæ" (London, 1723) is that "all those parts of a human body which are vascular, or through which any fluid passeth, from the intestine to the minutest fibre, are the seat of the operation of medicine."

It was Cullen's conception of this great discovery and of its importance in practical medicine that prompted him in the effort to establish his system. His attempt was not merely an essay towards forming a doctrine of disease affecting the solids, as Haeser and some other medical historians have treated it; it was a learned and honest effort to realize for practical medicine one of the greatest achievements in medical science. Whatever had been heretofore attempted toward the realization of such a doctrine, in opposition to the old humoral pathology, was based upon pure hypothesis. That Cullen was not more successful in his attempt, based as it was upon the discovery of irritability, was wholly owing to the imperfections of the existing system of physiology. Our fathers were wise in demanding the numerous American editions of Cullen's works; they felt intuitively the beginning of the new day; their ideas were not so much astray as Dr. Clark,[1] following Buckle, would lead us to believe.[2]

If the discovery of irritability by Haller was the basis upon

[1] A Century of American Medicine, p. 5.

[2] Some of the more striking of Buckle's numerous errors are evidenced in his estimate of medical doctrines. All matters pertaining to our profession in Great Britain are made to conform to his estimate of English and Scotch characteristics; of Germany he knew next to nothing. Selecting from the French translation of Sprengel, he took only those ideas which supported his *à priori* conclusions; he made himself a striking example of those faults which he condemned in Cullen.

which Cullen built his practical doctrines, they also furnished the solid foundation for the splendid genius of Bichat. Without exactly coinciding with that sweeping judgment of Buckle's that finds no middle-man between Aristotle and Bichat, we recognize in him a genius, a devotion, and an energy so great that his early death, even now, causes a feeling of sympathy and regret for the age that lost him. Yet it is not to be forgotten that the tissues which he investigated and classified were individualized by Haller's discovery; that a Morgagni, Vic d'Azyr, Scarpa, Munro, Cruikshank, Sömmering, and Bordeu had preceded him or were working with him; that Pinel fostered the genius that was soon to illumine the medical world If Bichat deserves all our admiration for his genius and all our regret for his early death, then Haller deserves none the less for his genius and for a long life devoted to our science. American gentlemen who were trained in the school which Bichat formed, and who have since become our medical teachers, must have experienced a vivid sense of its glories. It may seem erroneous to place so high an estimate upon Haller in comparison with Bichat; yet it is one of the honors that we can render our teachers, — to differ from them where honest study furnishes a basis for honest dissent.

Bichat and Cullen were the immediate fruits of Haller's discovery; but the same stimulus which was so beneficial for these sound organisms became dangerous excitants to the irritable, ill-balanced minds of Brown, Rasori, Broussais, and Hahnemann. The murderous schools of the three first died a speedy death; their mania was of an acute type; they could not last long, for they would have exhausted the race. It was different with the ideas of the great "Doppelkopf" of learning and ignorance, as Richter calls him. Excitability, irritability, the spagyrism of

Liebig, all have had their day; yet the doctrine of *similars* still prevails to a certain extent. It is a noteworthy fact that their prevalence in the countries of the world is in exact proportion to the degree of culture of the several countries. Spain, Russia, and America have more powerful and larger bodies of homœopathic practitioners than Germany. The editors of the languishing journals of homœopathy in Germany and England congratulate their literary brethren in America upon their greater numbers and prosperity; and the Czar and her ex-imperial majesty, Queen Isabella, are the monarchs most praised for their liberality to the persecuted new school. To such a statement might be opposed the fact that Vienna has her Gumperdorf Hospital, but a walk through the wards will tell the story; the sisters of mercy and the inscriptions on the beds give faithful testimony to the alliance between the new school of advance, as it is called in America, and that bigoted, reactionary Catholicism with which Austria is cursed: each has a common interest against the modern materialism that rules in the Allgemeine Krankenhaus.

Another considerable influence in the perpetuation of the school has been its reliance upon the support of the laity. Here is a system so simple that you can test its value for yourselves, it says to the cultured laity; and in so saying it flatters most insidiously a certain form of vanity extremely common in this class, — a class which forgets that, with all the good-will and candor in the world, to judge fairly of the merits of a question in therapeutics, careful observation and study are needed, even after a good training in anatomy, physiology, and pathology have fitted the judges for their functions. Regular practitioners, who have strictly adhered to such a self-evident proposition, have, partly by the folly of some members of their own ranks and partly by the very reti-

cence which wise men learn to practise in certain circumstances, acquired a character for bigotry and tyranny that has done much for homœopathy in making it appear the object of oppression. What is true of the ability of the laity in the judgment of problems in therapeutics, is equally true of a number of the practitioners of the homœopathic school, who, from the nature of their training, are no better able to determine questions of this character. Still another class are simple frauds, who use the name as a popular catchword for practice. One division of this class is composed of men of decent training, who fear an open contest with their peers, and prefer the cheap superiority which they can obtain in the homœopathic ranks. These two classes of practitioners have given rise to the unjust and stupid generalization that all homœopaths are either knaves or fools There is still another class, — those who are educated and brought up in homœopathy as we often are in our religious opinions; they vary much as to honesty and ability, but average, of course, as any other like number of men selected from the community in which they live. Something else in human nature or circumstance will determine for such men whether they will drop into a lazy content, a restless dissatisfaction and disgust with medicine, or turn a complete professional somersault. One thing is certain, — that a better medical education than our schools give would render their number decidedly smaller.

In reference to the doctrine of homœopathy, its teachings simply convey the principle that diseases are cured by remedies which cause symptoms similar to those characterizing the disease itself. There are appearances that may, upon superficial consideration, be grouped under this formula; but a little thought will show that it cannot be otherwise. Some drugs have an elective

affinity for certain tissues or organs; and again, such tissues and organs have in certain cases a characteristic response to any irritating cause, medicinal or otherwise. A cystitis or a pleurisy, for instance, are roughly characterized by the subjective sensations which they cause. That drugs may cause such sensations, and again relieve them in disease, is merely an evidence of the relation which observation, pure and simple, would lead us to expect. Our present knowledge of the cure of disease does not enable us to say more than this, — that the effect of the drug is to cause changes in the part where disease exists, which change may be toward health or the reverse. Our most brilliant therapeutic discoveries are the product of a pure empiricism that cannot be brought, as yet, within the compass of this or any other law; such are, for example, the use of salicylic acid in rheumatism, nitrate of amyl in neuralgia, iodide of potash in syphilitic disorders, etc. Our profession must at present rely upon the testing of alleged facts by experiment; just as, in establishing the Darwinian theory, its gifted author was content to accumulate mountain upon mountain of fact until his hypothesis (not law) almost evolved itself. It is this empirical nature of medical science that makes the sincere student, delving by such apparently slow methods, patient in following those methods which a sound philosophy points out to us as the proper ones, at the same time that it renders him irritable and too often unjust toward the butterflies that spend their time in profitless flights from one medical theory to another.

It is a suspicious circumstance that the school which is favored with the only therapeutic law is subject to as much division and uncertainty, aye, even plodding empiricism, as those who are outside its pale. Any honest practitioner of homœopathy — and

I gladly bear witness to the fact that they are numerous — can inform us how many specifics, according to the law or theory, have not stood just this test of empiricism, and have, consequently, been consigned to the limbo of things forgotten. Still another serious consideration is the thought of how many parasites have grown upon this theory. Not to mention any of the older ones, I will instance Von Grauvogl's proposition of terra alba as a cure of cancer; or, still more ridiculous, Schlüsler's tissue remedies, and the lucubrations of the high dilutionists. Oppose them to the frank letter of Dr. Wylde, the vice-president of the British Homœopathic Medical Society, and then decide if such neoplasms are the products of a healthy medical body. The fact is that these parasitic outgrowths are all that is new in homœopathy, as all cultured medical men know. Without going farther back than the sixteenth century, we find that the imagination of Paracelsus was excited by such facts as we have just quoted as apparently supporting the hypothesis of similars. Even Champer, that sixteenth-century embodiment of scholasticism, devotes considerable space to the discussion of them, and the spagyrists immediately following Paracelsus devote considerable attention to them. It is scarcely uncharitable, in the light of such facts, to say that "the true is not new and the new is not true."

Homœopathy was born of the discovery of irritability; the fact was too much for the physiology of the day, as the excesses of Broussais, Rasori, and Hahnemann prove. To the cultured, well-balanced medical scholar it opened up a new and grand domain in which they saw an unlimited field for their art. To those, however, who dispensed with chart and compass, and followed only their "heaven-born instinct," it was a labyrinth, a

tangled forest; the former kept steadily to the course that has brought us to our present position in spite of adverse circumstances. Nothing is more common than to hear regular physicians emphasize the good effect which homœopathy has had upon the practice of medicine. It has had its effect; but the study of the century's history will show that the old process of evolution of doctrines has been going on in obedience to causes that lie deeper than any part of medicine; that the *sum* of general culture has produced its effects in medicine. Theology has had no homœopathy; but the same advance has injured our ideas as to the geography of heaven and hell, our belief in the interpretation of God by his ordained priests, just as much as it has made the medical man sceptical of those heroic remedies that added so many names to the death-lists of old.

When Bichat taught us to differentiate the tissues, he bequeathed us at the same time the difficult problem of correlating these new facts with those which previous effort had taught us in practical medicine; when Schleiden and Schwann discovered the cellular character of these tissues, they added still another problem. To solve these has been tedious work; only after suffering the errors of Paris, Vienna, and Berlin, was it possible to take up the unfinished tasks. The lesson is as yet hardly learned, for it seems that many of our younger professional brethren, leaving their schools with but little idea of medical history, and, consequently, still less of medical philosophy, must by bitter personal experience learn that nihilism, dogmatism, and imitation are but poor qualifications in a profession so undeveloped as that of medicine.

When Magendie inaugurated the creation of a modern, exact physiology, he possessed a power that few men of his age, at

least in medicine, excelled. His untiring energy was rewarded by numerous discoveries. Johann Müller followed him, and, under their combined influences, a new growth was fostered that seemed to promise the immediate dawn of the medical millennium.[1] This was physiological medicine, that saw in the wonderful achievements of Müller, Magendie, Wagner, Valentin, Liebig, and their colaborers, a foundation upon which to rear a structure in which a distinct plan was to be evident in every detail. The slow, laborious accumulations of the past were to them worse than vanity. The old empirical spirit, dull, non-illumined, was to pass away, and the new light was to shine upon a practice in which all the demands of the most exact science were to be answered. Vienna, under Rokitansky, abandoned herself to complete nihilism; Germany, under Wunderlich and Henle, was quite as exacting, but a little more hopeful. All were agreed upon one point, however,—that in the future practice must be formed by logical deduction from the accumulated results of modern physiological research. What are the teachings of the last twenty years,—twenty years that have witnessed the establishment of hydropathy, electricity, the movement cures, and many other popular modes of healing, as regular favorite adjuncts in the practice of medicine; twenty years in which the ardent young leaders of the new scientific school have settled down into the most enlightened empiricism that they could discover, even as their grandfathers turned from their mechanical and mathematical frenzy in the previous century? What is the teaching, but that we are students of an empirical science in which the

[1] Dr. Jul. Petersen, Hauptmomente in der Geschichtlichen Entwickelung der Medicinischen Therapie, Kopenhagen, 1877, gives a masterly sketch of the rise and decline of the physiological school.

establishment of a new truth is of more importance than a library of the most plausible and most taking hypotheses?

To us in America the teaching should be deeply significant. We have added but little of the adornment of truth to our science; we have looked for butter from the sacred cow. The causes that have produced this condition lie deeply hidden in the springs of our national life; our inheritance of the past has not been direct, and we have slighted the history that might have supplied its place. A broad, liberal study of medical history would have taught us a lesson the opposite of that which we have unconsciously copied from our political and social life. At the very beginning of the existence of our country two entirely opposite types of society were established. Neither were the best representatives of their class. The offscourings of the courts of the Stuarts, who sought the Southern colonies, were very disreputable representatives of the aristocracy of England, while the narrow-minded but zealous Pilgrims who first settled in Plymouth were hardly average representatives of her real strength. These types were very markedly characterized by their religion. One maintained the episcopacy of the English Church, the other held fast to the distorted Protestantism that originated at Geneva. When an attempt at education was made at a later period, it took its character, to a great extent, from these prevailing religions. It was, in fact, based upon them. Fortunately for us, Laud was a bigot; to him and his royal master we owe the influx of healthier life that prevented New England from becoming the theocracy which undiluted Puritanism would have made it. The success in establishing education upon a theological basis was however sufficient to check the growth of science and philosophy. That part of science more directly connected with practical life

has naturally suffered least. Chemistry, for instance, has relatively flourished. The lack of a symmetrical scientific development is, however, only too apparent. Benjamin A. Gould, upon retiring from the presidency of the American Association for the Advancement of Science, in 1869, describes the result of our attempt at scientific culture as follows: —

"But what I would now say is, that, whatever may be the claims of our country to have done her part in the furtherance of civilization, so far as depends upon the solution of high political problems and upon advancement in the arts, her contributions to science have not kept pace with these, nor indeed with those of several European nations, which have had to contend against obstacles quite comparable in magnitude with our own, even though of a totally different nature. France, torn asunder by frenzied convulsions and internal throes such as no other civilized nation has ever been called on to endure; Germany, trampled under foot again and again by foreign invaders, civil strife, and domestic oppression; Russia, lately emerged from Asiatic barbarism, and contending at once against the Turk, the Tartar, and the Western foe, — have they not had their share of hindrances to scientific progress, great, even if inferior to those offered by the forest and the savage? Equate out the names of a very few men on each side, whenever this seem possible, and what an overwhelming preponderance would then throw the Western scale aloft!"

"Two hundred and forty years!" I hear some one say. "What are they in the development of a nation or its scientific character? Twenty-five centuries have passed since Thales predicted an eclipse of the sun; nineteen since Sosigenes reformed the calendar for Julius Cæsar; fourteen hundred years have rolled over

the University of Bologna. What to you Occidentals seems a hoary antiquity is a mere yesterday for the dweller by the Tiber, the Thames, the Seine, the Danube, or the Rhine." Be it so! Yet Hans Lippersheim's first suggestion of a telescope was eighteen months after Newport had sailed up the James River with his infant colony The idea of a logarithm was then not born; Napier and Briggs were names unknown to fame The oaks and beeches had been cleared from these hills, and our ancestors had built their rustic homes at the time when Galileo was tortured into abjuring the profane doctrine that the earth moved and not the sun. When Harvard endowed the college that bears his name, there was no such thing as a barometer or a thermometer. It is within these very two hundred and forty years that modern science has come into existence and the world's intellect been turned from speculation to investigation. It is within this period that our implements of research have been devised, that the air-pump, the electrical machine, and the clock have been invented; that every public chemical laboratory, every astronomical or physical observatory, and every academy of sciences, has been founded. Boston had been settled when Kepler died. The grandchildren of the original colonists of Plymouth and the Massachusetts Bay were born when the law of universal gravitation was first proclaimed by Newton.[1]

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[1] Prof. John W. Draper holds an entirely different view of the condition of science in America. He says:—

"In many of the addresses that have been made during the past summer, on the centennial occasion, the shortcomings of the United States in extending the boundaries of scientific knowledge, especially in the physical and chemical departments, have been set forth. 'We must acknowledge with shame our inferiority to other people,' says one. 'We have done nothing,' says another. Well, if all this be true, we ought perhaps to look to the condition of our colleges for an explanation. But we must not forget that many of these humiliating accusa-

What political and social causes have operated in bringing about such a condition in America? Politically we have suffered experiments that would have exhausted a weaker country. Retarded development hardly strikes a casual observer as a diseased condition; it is necessary to make careful comparisons to recognize it, and such comparisons will prove that we, as a country, have suffered in this respect. We have borne everything from men who, with crude ideas of statesmanship, have formed the mould in which our national life is shaped. No one point is better illustrative of this position than our protective tariff. With our cheap land, our small army and fleet, no expensive ruling family, no neighbor whose constant menaces load us with an immense burden of preparation for war, European competition has been held up to our people as a bugbear that only the most exorbitant tariff can render harmless.

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tions are made by persons who are not of authority in the matter; who, because they are ignorant of what has been done, think that nothing has been done. They mistake what is merely a blank in their own information for a blank in reality. In their alacrity to depreciate the merit of their own country, — a most unpatriotic alacrity, — they would have us confess that for the last century we have been living on the reputation of Franklin and his thunder-rod.

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"Not without interest may we explore the origin of the depreciation of which we thus complain. In other countries it is commonly the case that each claims for itself all that it can, and often more than is its due. Each labors to bring its conspicuous men and its public acts into the most favorable point of view; each goes upon the maxim that a man is usually valued at the price he puts upon himself. But how is it with us? Can any impartial person read without pain the characters we so often attribute to our most illustrious citizens in political and, what is worse, in social life? Can we complain if strangers accept us at our own depreciation, whether of men or things?

"We need to go far back to detect the origin of all this: it is in our political condition. Here wealth, power, preferment — preferment, even to the highest position

In the mean while we send abroad for all that represents the great bonus which wealth pays to skilled, artistic labor, and pay for it with the products of soil at a rate cheaper than that at which the *pauper labor* of Europe can produce them. Every disturbance in the flow of local currents of trade finds us without the relief that a great reservoir of foreign trade would furnish, for foreign buyers will hardly look to America as a market in which to buy when our manufacturer must begin his work upon a material to which our protective tariff has given an enormous fictitious value, so that the dull times which invite foreign buyers to a large, overstocked market leaves us to our own distress. Thus, to the isolation of geographical position is added the Chinese isolation which a vicious system of trade causes. Is it wonderful that in such a condition our art and industrial schools produce their beneficial results but slowly? Here, as everywhere else in our national life, a cursed faith in legislation has put a

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of the nation, — are seemingly within the reach of all, and in the internecine struggle that takes place every man is occupied in pushing some other man into the background" — *Popular Science Monthly, January*, 1877.

No one will venture to deny that, as a nation, we are markedly characterized by our shrinking, modest timidity. Still we believe that it is not an "unpatriotic alacrity in depreciating their country" that has actuated most of our native critics, but the birth from the old passion of a deep, true, thoughtful love. If we could but spare ourselves the deeper pain that comes from the knowledge of how many of our "most illustrious citizens" deserve the character attributed to them, the pain that Prof. Draper mentions would lose all its force. It seems to me that Prof. Draper has made a miserable defence in supposing that we are so universally given to envy, vituperation, and malice. He is hardly philosophical in the next paragraph in putting some of the attendant vices of competition in the place of results produced by it. It is as though the heart-burnings caused in selecting a crew for a university boat-race were used as an argument against selecting from a large body of men. The larger the material selected from, other things being equal, the better the results.

statute in the place of principles; we neglect the grand doctrines of trade, and rely upon a piece of legislative trickery to supply their place. It is the same with our moral and intellectual life. Does intemperance thrive? Go to the legislature. Is jobbery and trickery the rule in politics? Legislate. Are our educational results meagre? Employ the same panacea. Until, as a result, a mountain of dead ordinances lead to a contempt of all healthy reform.

Socially, the lack of arbitrary distinctions has naturally led us to place great value upon the external indications of social superiority. This has naturally produced an appearance of uniformity, and a considerable degree of anxiety and fussiness in social matters. Extremes of this type are apt to form their impressions of a people from the same externals that have busied them to such an extent in their own country. Julian Hawthorne's "Saxon Studies" are the results of such impressions. The art, the science, the literature of the German race go for nothing when weighed against their — to Mr. Hawthorne — extremely vulgar manners. The individuality, the independence in social matters, of the inhabitants of the older countries are matters of commonsense that reliance upon fixed social laws have fostered: our own slavishness is a symptom of lack of development. The fixed laws are not a necessity, as some of our snobbish countrymen have thought. Culture in increasing the amount and refining the quality of what we desire will check our foolish extravagance in the vanities that please us, and thus do much in limiting our ideas of the value of accidental externals. At present, there is but little in American social life to foster an undue pride in ourselves. Where is there a people so given to empty, showy form? Where such a vulgar, open affectation of class superiority, based

upon accidental and material influences, as here in the home of democracy? Where is culture so abused, refinement so distorted, as here? Where has a nation so abandoned itself to a stupid, flaunting mimicry of that mode of Parisian life that makes French culture blush for its own capital? Where so much unrest and eagerness for reform, — the expression of the influence of these abuses upon the better part of our community?

The South has spent the last hundred years in a foolish attempt to resuscitate the vagaries which Cervantes slew, while the North, more practical and equally foolish, has developed its local aristocracies upon God knows what of assumption. To the former, such questions as, Shall the negro ride in the cars, sleep in hotels, attend theatres? are the social excitements. Reports from our foreign missionaries in Austria and France would show that those benighted countries extend these *privileges* to all, without regard to color: they would be merely amazed at a color distinction. The North is not to be outdone in social nicety, and the city of Fisk and Tweed is agitated over the question whether Mr. Seligman, a Jew, shall have the privilege of paying for hotel accommodation in the Saratoga where John Morrissey and his club-house flourish. The solid foundations upon which our national structure is based, hidden to the casual foreign critic, should give us courage in facing all the disagreeable facts which an honest self-examination disclose: just such an examination is the essential requisite for our improvement. A really noble character was never formed without this capability of exact, rigid self-judgment.

The practical achievements of man in the last century have been of such a nature that they have accomplished much in changing our ideas of both religion and education. The marvel-

lous improvement in means of communication have brought the different parts of the world in closer communion with each other, and the great changes in the producing capacity of mankind have left it more time to ponder upon the facts which have thus been supplied. Sciences concerned in the history of the world, particularly comparative philology, have broadened and intensified our ideas of the brotherhood of the race; local religions, that provide a paradise for a little fraction of the world, no longer suffice. Science has shattered the old doctrine of special designs in creation by tracing the evolution of the most complex organisms by an ascent so gradual that their environment seems almost adequate to cause it. It has invaded realms that were supposed to belong wholly to art; it has taught us the mathematical basis of harmony, and placed rigid rules in the place of the varied sensuous impressions that have formed such a maze for musical critics; it has taught us laws of optics and colors and design, and is banishing a vast amount of cant from pictorial art; it has analyzed many poetic fancies, such, for instance, as those concerning human physiognomy, particularly the eye, and shown the simple factors that have composed them.[1]

Most of our great reforms are but phases of this advance of science against art, of reason against sentiment The world is being agitated by the protests of the people against the system of aristocracy that was developed while might was law. Divine

[1] Science has taught us that the eye has failed under the demands which civilization has made upon man. Presbyopia does not trouble the savage, but without convex glasses a man above fifty, in civilized life, would be almost *hors du combat*. If our civilization was designed, the organ most concerned in advancing it was surely not designed for it, unless the slow growth of human wisdom that enabled man to apply lenses formed part of the design. Such a design in the creation of organized beings is all that Darwin attempts to prove.

right was slain long ago; its sister follies die slowly. Who that knows of the growth of modern scientific liberalism in England can doubt as to the future? Scientific charity, organized, studious, is seeking to apply its methods to cure the evil which the sentimental, "Lady Bountiful" style has so directly fostered. Woman is contending for her right to be more than the toy which the Middle Ages made her In education the traditions are deeply rooted; the principle of empiricism is gradually effecting changes. Men, whose reason has pointed them to shorter cuts in the way along which empiricism is slowly leading us, have endeavored to hasten the advance, and every year furnishes the fruits of their agitation. President Seelye, of Amherst, in his inaugural address, gives an illustration of the power with which men of the highest culture in academic methods not only oppose the use of the shorter cuts, but favor a real backward movement. It is only by such an attempt that one of the leaders of New England Protestantism finds himself marching shoulder to shoulder with the Jesuit fathers.

President Seelye says that his college has never swerved from the purpose of furnishing the means for "the highest attainable culture in science and literature and philosophy." In the next sentence but one of his inaugural address, he says, "But the constant and chief aim of its founders was to establish here an educational institution in which Christian faith might dominate, whose power might subserve the knowledge of Christian truth." No faith can *dominate* where highest culture in philosophy and science is sought. Such a culture is attainable only where reason is unshackled. Faith is not a matter of facts, nor of induction from facts; believing is doubting; uncertainties cannot dominate certainty. The divisions of the Protestant Church prove this

uncertainty of faith ; the solidity of the Catholic Church is bought at the expense of free scientific discussion. The same dearth of results in science and philosophy is caused by the voluntary submission to faith in the New England church that is caused by the oppressive tyranny of its older Catholic rival. The Reformation destroyed the perfect power of the religious tyranny that supported old scholasticism, and progress has been greatest where the least of the old rule was left. Christianity had the schools and all education for centuries. Europe was, however, compelled to live a sad experience until she had gained the wisdom that made Wycliffe and Roger Bacon doubt the religious authorities. God had been besieged with prayers ; Christ and the Virgin Mary and thousands of saints were offered the lives, the wealth, the all of mankind for their intercession. When trade, commerce, and war were more developed, new needs were felt in the more complex society. In answer to these needs, men strained every effort. In answer to one of them, an experiment which the Egyptians begun was perfected, and printing with movable types was *earned;* by this means the sum of culture could be given to the people. This made the Reformation, which Wycliffe had desired as ardently as Luther, possible ; it was itself the product of a process of evolution ; it gave the first great democratic impulse in education. It is only under the old scholastic rule that President Seelye's idea of the higher producing the lower education is true. Whatever name or organization may be given to popular education, it is alone that that supplies the higher. Universities are not the product of the wealth nor of the greatness of a country, but they are mere results of the culture of the people ; they react favorably upon the same culture, but they cannot create their supply. What do our own

colleges wait for while they send their graduates to finish in Germany?

The last thirty years have demonstrated the results of just this Amherst culture in philosophy and science. When Lyell began the revolution in geology, New England was deeply moved, not with an appreciation of the truth, but with terror of a new species of infidelity, by the shock to the Mosaic account of creation. The same result occurred when Darwin began to publish those facts that gave birth to the hypothesis of evolution. New England pulpits began their demand for the specimen of the transition stage between man and ape, and have rested solidly upon the fact of his non-appearance. Can men whose training has fitted them for such a reception of such facts judge of and teach the philosophy founded upon them? Will it be necessary to prove that Nemesius, of Emesa, that good Christian bishop, had conceived of the hypothesis of the evolution of man in the fourth century before they will seriously study it? The fact is that students in our American colleges are taught neither the facts nor the philosophy. A mistaken tenderness for their faith sends them into the world with no preparation to meet attacks upon it; they naturally become the students of the Rev. Joseph Cook in a post-graduate course. If these are the results to the clerical profession, for whom our colleges seem specially organized, what can we expect for the other professions, for general culture and particularly for pure science? We shall find that medical education exhibits the results of the same methods: the errors of the academic training are only avoided by having no training.

In applying any criticism to our profession, it is necessary to define the condition of the practitioners that compose it. Fortunately we have the opinion of one capable of giving an estimate

as fair and impartial as could be desired.[1] Dr. John S. Billings describes American practitioners as follows: —

"We have had and still have a very few men who love science for its own sake, whose chief pleasure is in original investigations, and to whom the practice of their profession is mainly or only of interest as furnishing material for observation and comparison. . . . Of the highest grades of this class we have thus far produced no specimens. The John Hunter or Virchow of the United States has not yet given any sign of existence.

"We have in our cities, great and small, a much larger class of physicians whose principal object is to obtain money, or rather the social position, pleasures, and power which money only can bestow. They are clear-headed, shrewd, practical men, well educated, because 'it pays,' and for the same reason they take good care to be supplied with the best instruments and latest literature Many of them take up specialties because the work is easier and the hours of labor are more under their control than in general practice. They strive to become connected with hospitals and medical schools, not for the love of mental exertion or of science for its own sake, but as a respectable means of advertising and of obtaining consultations. They write and lecture to keep their names before the public, and they must do both well or fall behind in the race. They have the greater part of the valuable practice, and their writings, which constitute the greater part of our medical literature, are respectable in quality and eminently useful.

"They are the patrons of medical literature, the active working members of municipal societies, the men who are usually accepted

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[1] A Century of American Medicine, p. 363 *et seq.*

as the representatives of the profession, not only here, but in all civilized countries. They may be famous physicians and great surgeons, in the usual sense of the words, but as such, and only as such, should they receive the honor which is justly their due. They work for the present, and they have their reward in their own generation.

"There is another large class whose defects in general culture and in knowledge of the latest improvements in medicine have been much dwelt upon by those disposed to take gloomy views of the condition of medical education in this country. The preliminary education of these physicians was defective, in some cases from lack of desire for it, but in the great majority from the lack of opportunity, and their work in the medical school was confined to so much memorizing of text-books as was necessary to secure a diploma. In the course of practice they gradually obtain, from personal experience, sometimes of a disagreeable kind, a knowledge of therapeutics, which enables them to treat the majority of their cases as successfully, perhaps, as their brethren more learned in theory. Occasionally they contribute a paper to a journal or a report to a medical society; but they would rather talk than write, and find it very difficult to explain how or why they have succeeded, being like many excellent cooks in this respect. They are honest, conscientious, hard-working men, who are inclined to place great weight on their experience, and to be rather contemptuous of what they call 'book-learning and theories.' To them our medical literature is indebted for a few interesting observations and valuable suggestions in therapeutics; but for the most part their experience, being unrecorded, has but a local usefulness."

"Wherefore, by their fruits ye shall know them," is the quota-

tion with which Dr. Billings commences this paper. It is a decidedly suggestive one for our medical schools. Such fruits tell of radical evils that every lover of our profession in America should be concerned in removing. Our schools have commenced a movement towards their improvement, but it is one which seeks to effect the purpose by clipping and trimming rather than by paying attention to the roots of the difficulty. In regard to a point of so much importance, one concerning which it is so easy for a person not engaged in teaching to be mistaken, it is necessary to draw support from those who have more experience and knowledge. We may use Harvard Medical School as an illustration, since it is a fair American school and has made itself most conspicuous in the reform movement, for which it deserves the praise and sympathy of the profession. There are two grand achievements of the school in this direction that have been boasted of in this locality to an extent a little beyond the bounds of excellent taste, viz., the preliminary examination and the lengthened term of study. As to the term of study, it might be doubled, and no good result, under a vicious system of study, the lengthened term might indeed do harm. We do not look to Spain for splendid illustrations of professional culture, yet, in 1846, M. Orfila describes the term of study as follows:[1] —

"The duration of medical studies is nine years when the student wishes to obtain the title of Doctor, and seven when he but seeks a license The latter degree gives the privilege of practising in all Spain, and those who possess it are physicians and surgeons (medicos-cirujanos, médicins-chirurgiens). The doctor only can aspire to a position as professor, or as fellow, or as phy-

[1] I translate from his Lettres sur l'Etat de l'Instruction Publique en Espagne, Paris, 1846, p. 7.

sician at mineral springs. It is probable that the doctor's degree will be likewise demanded from those who wish to attain the position of physician to a hospital or physician to the royal family. I will not forget to say that the end of the fifth year of their studies the students are all required to obtain the title of Bachelor of Medicine, which confers on them no right to practise."

On page seventeen of the same brochure, M. Orfila describes the conditions of admission to the study of medicine as follows:—

"In order to be admitted to the study of medicine one must, 1st, Be a Bachelor of Philosophy. 2d, Have studied general chemistry, mineralogy, zoölogy, and botany at least one year. 3d, Before presenting himself for his license, the pupil must also prove that he has followed a course in Greek either before being matriculated by the faculty or while studying medicine, since the studies necessary for the degree of Bachelor of Philosophy do not comprise Greek."

Prof. Huxley, in his address to the trustees of the John Hopkins University, speaks as follows: "I must confess that among the many satisfactory and striking institutions which I have met in this country, probably the manufacture of medical men is not the most striking nor the most essential. In a matter of this kind, there is no advice better than the advice of Dr. Johnson, 'Above all things, sir, clear your mind of cant'; and there is a good deal of cant about education; and I think a cant in respect to the medical profession is a notion vague and misty to the last degree, still powerful, that the medical profession ought to be a sort of liberal profession. When you come to analyze that, I think it comes to this, — that a doctor ought to be able to construe Celsus, so long as that is enforced upon him"

After enumerating the necessary studies, Prof. Huxley goes on

to say, "If this is to be done, if a sound education is to be given that breaks the backs of most of those who try to go through it, the most careful attention is to be paid to easing of the process by, in the first place, cutting off everything which is not absolutely essential"; and a little further on, "but I must say, honestly say, that my own feeling is very strong against any sharp, cut-and-dried matriculative examination; and there have been many instances, especially in the direction of science, where boys who have had no advantages or power of preparing themselves by matriculative examinations, have been nevertheless persons who have attained to the greatest distinction, and have been of the greatest service to their kind by means of such aid as the university can afford."

The following passage, which I translate from Helmholtz's "Populäre Wissenchaftliche Vorträge," Erstes Heft, s. 23, is suggestive in this connection:—

"As far as my own experience, in regard to the students who pass from our grammar schools to the study of the natural sciences and medicine, is concerned, there is, first, a certain laxity in the application of the most general laws. The grammatical rules to which they are exercised are in fact generally supplied with a long list of exceptions; consequently, they are not accustomed to rely, unconditionally, upon a legitimate consequence of a universally applicable law. Secondly, I find them generally too much inclined to support themselves by authorities where they might form their own judgments. In philological studies, the scholar must be referred to the best authorities, since he can but seldom review the whole material, and since the selection often depends upon the æsthetic feeling for elegance of expression and the spirit of the language. Both faults rest upon a certain tardi-

ness and insecurity in the manner of thinking that will be injurious not alone to later scientific studies. Against both, certain mathematical studies are the best cure. Here there is absolute security in making conclusions; here no authority rules but that of one's own understanding."[1]

To return to Prof. Huxley: "There is a sort of a notion that the profession has a sort of general liberal principle. I do not agree with that notion. I have a very strong conviction that what constitutes dignity in a profession, without which you can have no liberality at all, is that members of that profession should be able to do exactly what the public gives them credit for being able to do."

How many students, graduates from our medical schools, have been examined as to their capabilities of discovering traces of the alkaloids in mixtures containing organic substances, while they are unable to relieve or even diagnosticate with exactitude a simple otorrhœa, keratitis, or eczema? The teachers are employed, of course; but if they do not teach, to what good are they appointed? It will be understood that the teachers in these specialties are not blamed, excepting as they do not succeed in teaching when the opportunities are given them. The university must care for the student, however; and if this state of things is true, as it undoubtedly is, there is a fault that needs a remedy. An earnest, honest attempt at reform of the methods of teaching, and a thorough adjustment and arrangement of the subjects

[1] It seems as if a college course that should combine the best of the scientific schools and the present classical course is a necessity; it should be on perfect equality with the latter. At present the American student can pursue such a course only by devoting three years to the scientific school and four to the regular college course, but in the latter he would be obliged to repeat much and study much that is unnecessary.

taught in our medical school, would have had a far greater influence upon the character of her graduates than extending the time of study; not only this, but these forms would have adapted themselves to the better spirit; there would have been less of eclat, but more of substantial gain. It is possible that some schools have realized this fact.

The truth that the aim of medical education should be in the greater part to form a good observer, and not a well-crammed graduate, needs to be emphasized. It is better to fit the student to select from the mass of medical literature of the day, than to incite him to attempt an acquaintance with it all. To this end, teachers should be critical observers; students learn much by imitating their teachers. The pitiful excuse that practice makes such enormous demands upon our American teachers as to leave no time for research is worn threadbare: it gives time for an enormous amount of compilation and translation, why not for observation? Did practice hinder a Graefe, a Skoda, a Kiwisch from adding to medical science? It is the method which is at fault. Train our students to observe; select tutors from the world, not from a city or a street; let every man in the State or country feel that good work is a sure passport, that nothing else avails: and the results of trained observation will nourish the drooping plant that now causes so much solicitude.

Supposing that, earnest for medical reform, our schools should arrange a series of lectures upon medical history for their students, in which the evolution of medical doctrines should be carefully and critically described; that practical courses should be established in the specialties, and also in embryology as a basis of histological study; that the relation of the philosophy of medical history to the work of original research were carefully

pointed out; that it should be demonstrated to the students that culture in the former would enable them to appreciate more exactly the lines of advance in the latter. The arranging of such a plan would be merely calling in play the reasoning powers with which we are endowed, and endeavoring, by their aid, to open a shorter road to the goal than the present empirical one which is mostly imitative. "A stern chase is a long chase." It will take us a long while to overtake Europe if, in blind imitation, we repeat her mistakes as well as her successes. Our reason might save us from many wounds which, learning by experience alone, we shall suffer.

We shall find some things to encourage us in a careful study of our present condition. We have inherited much that some older countries will obtain only after many and tedious struggles. The democratic principle in education that begins with the greatest possible diffusion of educational means and privileges is fortunately already our own. It will take longer to produce specimens of higher scholarship upon this principle than it would have done had we made the higher types the immediate end. It took long to build the pyramids. Many of our most striking educational deficiencies are fortunately evidences that we have worked by this slower method.

Nothing is more striking to the student of history than the general diffusion of comfort and culture in the Germany of the sixteenth century. To the traveller, the museums of Europe are witnesses to the more general diffusion of the comforts of life, at this period, in Germany, than in England; to the bibliophile, the abundance and variety of the German literature of the sixteenth century is equally striking. Frederick the Great, the stern warrior and rigid ruler, was the most democratic of men in

all matters pertaining to culture and education. To-day, Germany is the nation of all others that knows no law of preferment in educational matters but the competitive; France bears witness to the evils of the priestly-aristocratic method; and England is an example of the results of a method that is fairly aristocratic. The scientific liberalism of England and the young liberalism of France are fighting for that general diffusion of education and culture that has made the Germany of to-day the leader of the world in science. Our forefathers were wise enough to establish just such a method in our own country. How have we kept the inheritance? The present condition of affairs shows. The product of our intellectual and moral training appears principally as excesses and vanities in social life, and trickery and corruption in politics. There has been much talk the last year of the scholar in politics; he is urged to bring his purity and learning to leaven the loaf. But there is as much of compromise and jobbery in our institutions of learning as in our politics; colleges, as well as States, have their favorite sons. In fact, it seems quite probable that this vicious system in educational affairs has had much to do with our political degradation. The scholar is religious under our present system. The State that has no church has an educational system that is all church. Theological dogmas shackle our philosophy, while the errors of our political and social life prevent us from acquiring the strength for our emancipation; but as in the Middle Ages to be a pope was not to be an Anselm, so now to be religious is not necessarily to have that vital, earnest, practical morality that is needed to reform our political and educational abuses. How often do our colleges really make a painstaking search for the best professor or tutor? There is something startling in the question. We have become so accus-

tomed to seeing our institutions of learning shaping their policy and engaging their servants to suit the whim, religious or otherwise, of those from whom it hopes for a bequest; we have so often seen them filling a chair with a good Methodist or a good something else, hoping that the teacher will be added, — that it seems an almost forgotten art to make a direct attempt for the best possible educator.

When Berlin obtained Helmholtz, when Heidelberg obtained Gegenbauer, different forces operated. The humblest scholar in Germany knows that his labor is his only passport to preferment. Our older and richer institutions of learning add brilliancy to their names, not by seeking the best tutors that they can obtain, but by sneering comparisons with the attempts of the newer parts of our country at a higher education. We must accept this principle of general national culture, and use our honesty and ingenuity in forming and guiding it, that it may naturally produce the fruit that we desire. If we could, by governmental interference, bring into play some forcing influence, if we could establish a finely equipped university, we should fail in a supply of material for it, and depart from the traditions which we have inherited, which history teaches us to respect. We do not suffer so much from lack of means as lack of method. Exclusiveness, narrowness, and selfishness, outcomes of weak, wilted philosophy, and our political and social life, alone interfere with our applying all the good that the study of German methods teaches.

Our schools have made our doctors; our doctors organize in societies; our societies are represented in the American Medical Association, and a part of our State thinks it is not worthy of its attendance. The character of its publications is criticised; it is stated on every side that reform is needed; that our best

men don't go, etc., etc. Has it ever occurred to our fastidious friends that the association is representative; that the faults which do exist are the faults of our profession, and that the faults of our profession are, to a great extent, the faults of training? Supposing that only our best men went, would they compose an ideal association? One of our eminent practitioners thinks that two men from the State society should be delegates for life, and that upon their death the association should elect two to fill their place. It is a novel idea, — a crystallization of all the nonsense that has been said upon the subject, a House of Lords in medicine that shall not be trammelled with a Commons. What is the association if not representative? Errors and virtues are alike but reflections of those in the profession; it is the profession that needs the reform, — a reform that shall extend back to the period of its creation, that shall mend the method under which they are developed.

It is especially interesting to analyze the condition of medical societies in this hot-bed of dissatisfaction with the American Medical Association. What has Boston to show as products of that superior wisdom that finds so much at fault in the larger body? Here we have a representative local society, — the Suffolk, — and the utter contempt in which it is held is richly deserved. Once in a while a good paper is read before it, — an accident that infrequently happens; its officers are good men, but they but mourn over the character of the society and its proceedings. What causes have operated to produce such unsatisfactory results? One readily feels if he lives in the city; a number of men make no pretence of reading or speaking in the Suffolk; the two or three medical clubs that have existed here for so many years select from it for their membership; a

general understanding exists that it is the proper thing to exhibit effort in these clubs only. As a result, the representative society is left to decay and the rabble. If the death of the Suffolk had given true life to the clubs it would have been different, but they have nothing to show us that compensates for the lack of life in the parent society. A rather better order of compiling and compounding prevails. Once in a great while a fact is brought to light; but they do not produce many real discoveries, nor do they, to any great extent, foster the spirit of original research. They do, on the other hand, illustrate much that is petty in a sort of snobbishness that has come to prevail in them. While it is a well-known fact that a good collection of men of rather dubious medical attainments may be selected from them, it is equally well known that friendship and social ties have brought it about that there is great uniformity as to social taste among the members. In the light of the events surrounding us, is it not almost time to doubt the efficacy of legislating ourselves into eminence in school and society, and begin doing the work that waits for us, content to earn the honor we court by sound effort?[1]

[1] It is not alone in her societies that Boston exhibits weaknesses that should make her slow in assuming an infallibility of judgment in medical affairs. More scientific work has been done in Heidelberg in the last twenty years than in Boston since its foundation; yet the former is a German university town of 20,000 inhabitants, the latter the Athens of America, the hub of the universe, with more than 300,000. Boston hospitals count their wealth by thousands. I leave it for the profession to compare their scientific record with those of the hospitals of Europe. The Charles Street Eye and Ear Infirmary is older, larger, and wealthier than most of those in Europe, yet it has made no contributions to science. It has a pathologist, to be sure, but he examines nothing, although the great practical demands made upon the American surgeon has left him time sufficient for a variety of popular compilations. She has a weekly journal that languishes, while all New England is an open field for it. Yet it is fair to claim a large amount of character and energy for Boston medical men. In this respect she would not suffer from a comparison with the best: it is the method upon which they labor that is at fault.

The same desire to legislate ourselves into an exclusiveness that gives merely local distinction is seen everywhere in our medical organizations. In the American Ophthalmological Society, related as it is to the specialty that owes its existence to an Helmholtz, a Graefe, a Donders, and a Bowman, a specialty that comes nearer than any other part of medicine to the ideal union of science and practice, do we find a trace of the catholicity of modern science? I maintain that any American physician, regularly enrolled in his State society, who is specially cultured in ophthalmology, and who practises it, is a proper candidate for membership, and that it is for the interest of the society to elect him.[1] The present policy of the society of informing its applicant that it will wait for some work from him that shall in a measure give him position, is all wrong, since it is a premium upon a hasty and consequently a superficial way of doing things. The society should have a nobler function of receiving, of welcoming, every regularly qualified, honorable applicant, that it may guide and form him at a stage of a man's life when he needs all the influences that such a society can exert. The little pride that sees an immense prize in the society's membership, that affects all the airs that characterize that most stupid of all attempts to set a legislative seal on a man's work, — the French Academy, — but illy accords with the character of the productions of the society itself; a society that has made a "tedious labor" of producing the method of "Dyerizing."

The tendency to legislate is illustrated in the constitution of this society. It consists of thirteen printed lines, five of which are as follows: "No member shall attach to his name, in any

[1] The constitution of the society contains the same declaration, but it is practically ignored.

public manner, the title of 'oculist' or any similar title, or shall announce in print that he gives special or exclusive attention to special practice." Of course such a piece of petty tyranny is totally disregarded, as the title of oculist is not always used in a private manner, nor is the notice that one gives "special or exclusive attention to special practice" always made in manuscript. It would seem that the character and tastes of the individual members, where they are so carefully selected, would be sufficient to settle these points. It is one illustration of the different degrees of development of German and American practitioners that in Germany the specialist sees nothing to conceal in the fact of his being an expert in one branch, and of stating the fact for the benefit of the professional public. His society would hardly succeed in such an attempt as the American society has made, although in civic life he is supposed to be the victim of such an oppressive rule. It is among us, with all our political freedom, that legislative tyranny is attempted in such matters; however, nothing more serious than another dead ordinance results. It is distasteful to mention the fact, it may disturb the serenity of a rosy youth, but it is generally thought that the origin of the American Gynæcological Society is but another instance of the old spirit on the part of its Boston originators. That of the few specialists in the city, three or four should originate such a movement without notifying or without inviting to the society's membership their fellow-workers, men who are at least their peers in honor and attainments, savors of a narrow egotism, which, to say the least, is unbecoming in scientific matters: it was gynæcology, not Jones or Smith, that was to be advanced.

How long will it take for us to learn that such management is bringing our profession into deeper disgrace each year that it

continues? Let the sage of Roxbury become useful to the profession as an example of what to avoid; his methods have not dignified or ennobled the profession that his arbitrary wire-pulling has so long afflicted.

We belong to a profession that, of all others, has need to guard its education and culture; success is even a more dangerous criterion of ability than in the other professions. We have no competent jury and deal with no matters of goods and chattels, where gain or loss may be directly estimated. An old writer has said of us, "Heureux, de ce que le Soleil éclaire leurs succès, tandis que la Terre couvre leurs Bévues et leurs Ignorances."[1] The results of honest professional labor are too often underestimated by the matrons who determine the fate of so many of us, while social graces and plausible speech have undue weight.

We begin our life imbued with traditions which we have, to a certain extent, inherited from the university system of the mother country; even the follies and eccentricities of English university life are copied with something of the tender regard that is felt for the moss or mistletoe of an old oak. Time has furnished the decay that nourishes them in England: it is for us to produce a vigorous tree that shall grow with our growth We are laudably eager in obtaining the results of German research, let us strive to make her methods our own, and while we labor to bring the fruits to America, seek to plant for our own country the tree which bears them.

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[1] Menken, de la Charlatanerie des Savans.