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The Evolution of Modern Therapy.

AN ADDRESS READ BEFORE THE SOCIETY OF THE ALUMNI OF
THE MEDICAL COLLEGE OF VIRGINIA.

presented
BY

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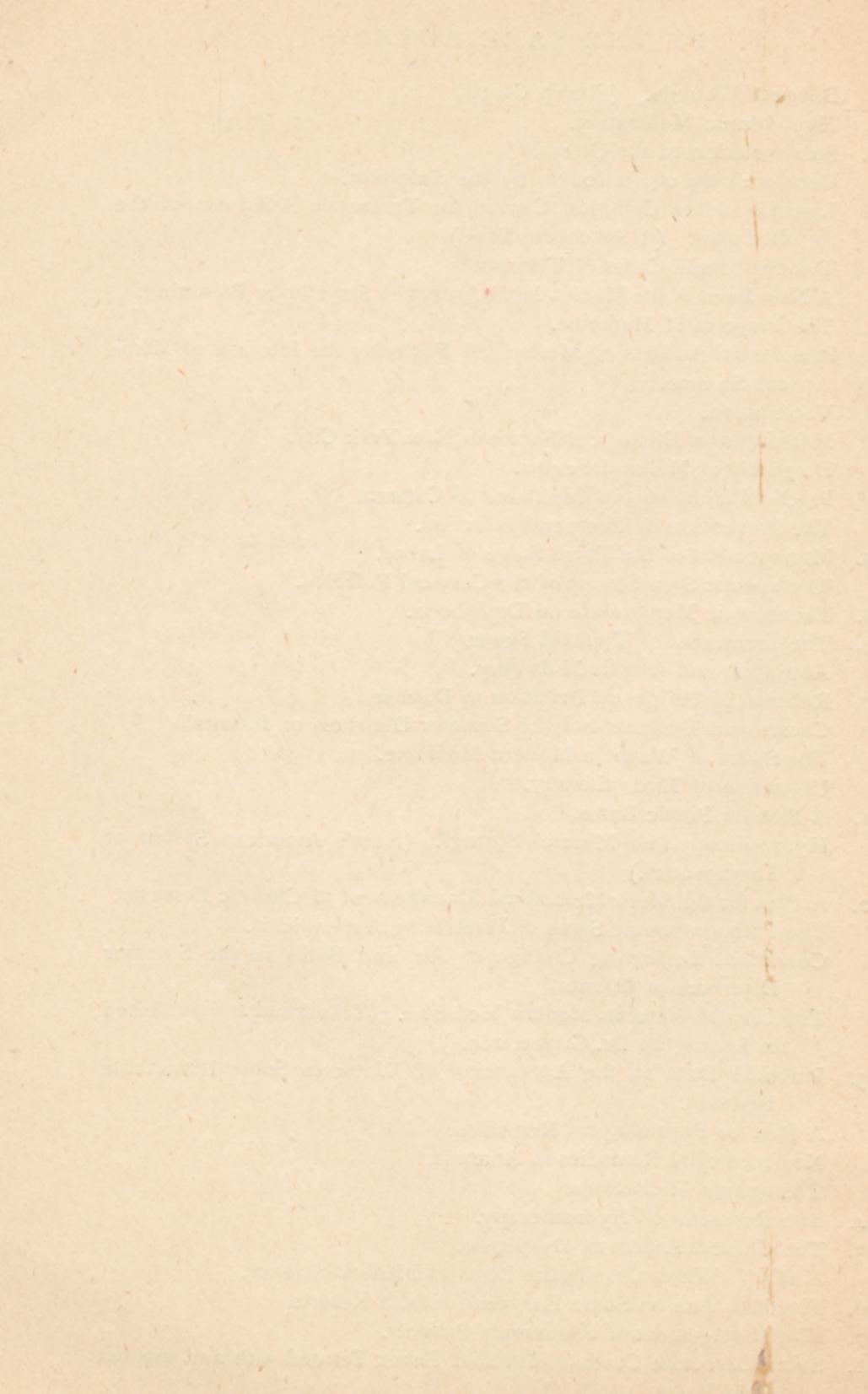
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*THE EVOLUTION OF MODERN THERAPY.**

BY SIMON BARUCH, M.D., NEW YORK,

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What is the status of therapeutics to-day? How does it compare with that of the past? What lessons may we gather from the contemplation of its history; what deductions for our individual and collective betterment, from a retrospective analysis of the therapeutic aims of our predecessors?

As brothers let us consider this vital subject in our family circle. I propose to offer you a brief outline of the therapy of the past in order to show that despite the emancipation of medical men from the iron rule of leaders of schools and systems, we are still far from the golden truth in therapeutics. How may a better therapy be evolved?

In the days of Hippocrates, Galen, and their successors, these great leaders attempted to guide the physician through the mazes of doubt and mysticism, their own intellects darkened by ignorance of anatomy and physiology—the blind indeed leading the blind! Is it surprising that they groped amid the problems of life, disease, and death without reaching their solution, when we, whose paths are illumined by the brilliant discoveries of a Harvey, a Claude Bernard, a Bichat, a Darwin, a Huxley, a Virchow, a

*Address before the Society of the Alumni of the Medical College of Virginia.

Pasteur, and their followers and colaborers, are still so far from the key to the cure of disease?

"Life is short, art is long, opportunity fleeting, experiment dangerous, judgment difficult," has been well said by that grandest of medical intellects, the father of medicine. Read his works to-day and you will find that despite the dense pall of ignorance which oppressed and often misguided him, he divined the true aim of therapeutics. I propose to show you that modern therapeutics only attains perfection when it approaches most nearly to the teachings of Hippocrates. True, the golden grain of rationalism was buried deep amid the fallacies and traditions of his day, and obscured by crude conceptions of the structure and functions of the human organism. But if he had done nothing more than discover that pithily expressed attribute of the diseased human organism, "*vis medicatrix naturæ*," his name would deserve to be immortalized, for these three words are the still small voice which has brought his empiricism- and ignorance-sodden followers, in all epochs of medical history down to the present time, back to the true aim of healing. Although he regarded venesection as necessary, Hippocrates warned against excesses, because he deemed it a highly debilitating measure to be applied with the greatest caution, and one which should be almost forbidden in weak persons, children, old people, and pregnant women. With therapeutic intuition he regarded inflammation and fever as manifestations of the conservative tendencies of the

organism against which so heroic a measure was likely to react unfavorably. Although he bled freely in inflammatory conditions, he constantly cautioned the wisest care and attention to the condition of the patient's strength and vitality, his aim being "to relieve pain, moderate perturbed febrile movement, and promote crisis." For this reason he preferred local bloodletting. His plan of treating disease was cautiously watchful of the indications of nature (*φυσισ*), by which he meant the organism. In his work on epidemics he writes: "We must do nothing foolishly bold, but be quiet and wait; if one does not help the sick, one at least does them no harm." In fevers he advised an abstemious diet, barley water, as a drink water and honey. Of medicines he used emetics, laxatives, and revulsives; radix hellebori, asses' milk, and juice of euphorbium. All his writings display an acuteness of perception which makes his observations valuable. The noble spirit which he sought to inculcate is evidenced by the Hippocratic oath, which commands the physician to live virtuously and piously and to preserve his art.

The enormous proportions which bloodletting assumed among many succeeding generations of physicians testify not only to the dominance of this remedial agent, but its rise and fall illustrate the varying conceptions of the aim of therapeutics which held sway at various times. I can therefore offer you no more striking illustration of these therapeutic conceptions than by briefly tracing the fate of this chiefest of so-called curative agents throughout medical history.

The death of Hippocrates (366 years B. C.) resulted in more or less desuetude of his philosophical and rational teachings. Professing adherence to and extolling the latter, his scholars and their followers gradually swerved from the lines of strict bedside observation and deduction, which he had inculcated as the first duty of the physician. They attempted to construct systems of medicine by substituting their own speculations for the more simple methods of the Nestor, and thus they fell into false practices. There were a few exceptions among these impracticable men, who urged bloodletting and purgation in all diseases. Chrisippus and his pupil Erisistratus held boldly to the master's teachings and insisted that spoliative methods were contrary to nature. Indeed, few physicians at the present day excel Erisistratus in the wise ordering of abstention, baths, enemata, and other harmless therapeutic measures. Phillipus of Cos and Serapion (260 B.C.) formed the empirical school, based upon the pure Hippocratic doctrines. They cast aside all dogma and hypothesis, and depended solely upon bedside observation. They were extremely cautious with venesection, and regarded plethora and retained excretions as the principal etiological factors. They depended chiefly upon enemata and laxatives, and resorted to bleeding only when these failed, avoiding it always in chronic cases.

When the exponents of this sensible practice passed away, their pretended followers deviated from their teachings and lapsed into the most crude empiricism. Medicine was

rescued from the latter by Asclepiades,* who adopted as a motto of treatment *tuto cito et jucunde*, depending chiefly on diet, rubbing, exercise, rest, and bathing. By reason of his great popularity in Rome his propaganda for bathing in health and disease obtained enormous success.

Galen is a familiar name. Being a man of culture and possessing great oratorical powers, he so skilfully constructed a system of medicine by a conglomeration of all former doctrines and practices that it endured for thirteen centuries. His fantastic ideas of the residence of the cardinal powers of life in the heart, the brain, and liver, and his doctrine of the four temperaments based upon the predominance of mucus, blood, yellow and black bile, stamp him as an idealist. Still he insisted upon the Hippocratic doctrines, and by his remarkable cures he acquired enormous repute, which is evidenced by his becoming physician to the Emperor Marcus Aurelius. He advised bloodletting as the surest remedy in plethora, in chronic ailments due to suppressed hemorrhages, and as a prophylactic, but he warned against bleeding to syncope. Although he was an active bleeder, he cautioned against excessive depletion, urging that "loss of blood may be

*This truly great physician and philosopher was the bosom friend of Cicero and a pupil of Democritus, who really foreshadowed the "cellular theory" by teaching contrary to the prevalent humoral theory, that "not the juices of the body but its elements and atoms are active in promoting health, and that their disturbance constituted disease." The intellectual preeminence of Asclepiades is attested by Pliny.

come harmful, because the vital spirit flows away with it and large losses must impair all the natural processes."

The first centuries of the Christian era, when science and art lay prostrate, constitute the darkest period of the history of medicine. Amid the darkness, and the excesses committed by the monks and others who arrogated to themselves the title physician, a few true medical spirits shone like gleams of promise.

Alexander of Tralles, living in the sixth century, though a follower of Galen, was courageous enough to oppose him by insisting that the physician should not follow any system of treatment, but that he should be guided in each case by the age, constitution, natural powers, and mode of life of the patient. Despite these sound views, bleeding was his chief remedy, though he cautioned against the excesses which he daily witnessed among the motley practitioners of his day.

The fifteenth century produced that erratic but clever reformer, Paracelsus, of whom the historian Ranke has said: "In him lived a spirit ingenious, profound, and endowed with rare knowledge." Although his vanity and bad habits made many enemies, and his alchemistic doctrines betray the spirit of ignorance which was the prevailing characteristic of his time, he displays true medical intuition in the earnestness with which he inveighed against Galen's doctrines and spoliative practices, and in his recognition of the authority of Hippocrates. He wrote: "When disease attacks the body, all the healthy organs must combat it, for disease

tends to kill them all. Nature recognizes this fact, and therefore she attacks it with all her might." What Hippocrates called "*vis medicatrix naturæ*" Paracelsus termed "the inner alchemist." He proclaimed boldly: "Nature is the physician, not you! Since I saw that the doctrines of the ancients have accomplished nothing but the making of corpses, death, deformity, and decay, I was compelled to pursue the truth by another way." Whatever the failings of this man, be he charlatan or wiseacre, these ideas betray a realization of the aims of the true physician as we regard them to-day.

The same century produced Brissot, who with great learning and logical acumen inculcated that inflammation does not always demand venesection, because "the powers of nature, which always aid the diseased organism, may produce salutary congestion." He opposed general bleeding and preferred, like Hippocrates, local depletion. It is a sad commentary on the spirit of the medical profession of that day, and exemplifies the enormous prejudice in favor of bleeding, to record the fact that poor Brissot was not long permitted to sing the praises of "*vis medicatrix.*" He was driven from Paris to Portugal, where he died a martyr to his excellent doctrines, amid the curses and maledictions of his *confrères*.

In every country bleeding, purging, and other spoliation continued the weapons with which disease was attacked.

A reformer appeared in the seventeenth century. Van Helmont sought to end the sad reign of spoliative therapy which had

resulted from the perversion of the doctrines of Hippocrates during the dark ages. Despite his fantastic and mystical tendencies and practices, he was a brilliant physician, which is evidenced by the fact that even in that early time he laid special stress upon the fallacy of treating symptoms. "Diseases have no roots," he wrote; "their termination is based upon the removal of their causes; the aim of treatment should not be the *cooling of temperature* and removing the changeable symptoms; the physician who directs his chief attention to these things and not to the removal of the cause, loses time, labor, and opportunity." He prescribed opium as a stimulant, and mercury, antimony, and wine in fevers. Against depletion he strove with might and main: "I estimate that indication most highly which is based upon the maintenance of the strength; venesection is directly opposed to the latter; the entire treatment should be for the maintenance of these powers. In fevers the indication for bleeding is absent. It is forbidden that he injure Nature, who should hasten to her aid when she tries to help herself. She can do this more perfectly the more vigorous she is. The physician should certainly know that without his interference the patient is debilitated enough by the disease, the loss of appetite, restlessness, pain, fear, wakefulness, and perspiration. By the rapid withdrawal of blood Nature is hindered in the destruction of her enemy. It is an insane practice to draw blood so frequently and at the same time offer the patient nourishment, regardless of the complete abeyance of his digestive powers."

To us of this enlightened era these views have the true ring; how singularly perverse was the medical mind in refusing to accept these salutary lessons! How steeped the medical profession was in its errors, and how authority ridden, is sadly evident from the fact that Harvey, the discoverer of the circulation of the blood, was so persecuted by reason of his teachings that he lost his large practice in London, and his work, being refused censorship in England, was printed in Frankfort several years later (1628). In Paris his book was also prohibited.

It required a bold spirit indeed to antagonize the prevailing doctrines and the hapless therapy based upon them.

Now appeared upon the scene the famous Sylvius (1660), who taught Van Helmont's method in the University of Leyden. He added certain chemical doctrines which seem extremely absurd at the present time. He spared the patient's vitality by refraining from depletion, his chief remedies being simple diluents. His influence was good, but it did not seriously check the bloodthirsty doctrines. The discovery of the circulation of the blood even did not bring order out of the then prevailing therapeutic chaos. The circulation was regarded as a hydraulic process, and diseases were thought to be due to a despoiling of the blood, which could be remedied by bleeding and even by injecting medicinal agents or animal blood. The holocaust to venesection continued to accumulate, and the voices of the few great reformers were silenced amid the detractions of a multitude of despoilers.

In the latter part of the seventeenth century a brilliant star arose in the medical firmament. Thomas Sydenham strove to reinstate the lost doctrines of Hippocrates and relegate Nature to her merited position as a healer. A rational empiricism, a treatment free from speculation and based entirely upon observed facts, was his aim. Sydenham defined disease as "an effort of Nature to preserve the patient; this effort is manifested either by a purifying fever, the symptoms of which are the signs of Nature's battle, or by intestinal evacuation, sweating, or cutaneous eruptions. If Nature conquers the disease becomes acute; if not it becomes chronic." Although Sydenham, like Hippocrates, believed that it is the physician's duty to watch closely the processes of Nature in the furtherance of cure, he erred, like the great Nestor, in regarding high fever as an abnormal action, which must be modified by antiphlogistics, bleeding, purges, watery diet, and cool surroundings. He was a determined yet wary bleeder, always cautioning against excesses and deploring the therapeutic barrenness which forced him to resort to venesection, a remedy which he regarded as debilitating and destructive to the whole body. He said that "a regular system of management frequently cures many diseases better than the powder of the apothecary." He valued cinchona and opium highly. As a pupil of Locke and a student of the Montpellier school, which had served to maintain the rationalism of Hippocrates amid the chaotic confusion into which it had degenerated, he was a strict observer and insisted upon definite indications for all treatment.

Another evidence of returning good therapeutic sense is furnished by the life and teachings of one Gideon Harvey, a contemporary of Sydenham, who was physician to King Charles II. and William III., and city physician of London. He wrote a book in 1689 on "The Art of Curing Disease by Expectation," in which he violently assailed the prevailing spoliative methods. He may be regarded as the father of the expectant treatment, which came into vogue in the latter half of this century.

The enlargement of knowledge resulting from Harvey's great discovery and Sydenham's philosophic and yet practical teachings appear to have influenced therapeutics very little. We find in the writings of Pechlin (1700), who was a very conservative practitioner, the statement that spoliative methods continued in vogue in Europe and that especially in France bloodletting became a veritable fashion, against which the scathing satire of Moliere was as impotent as the eloquent warnings of the few rational physicians.

Even Boerhaave, who was justly regarded as the most celebrated physician in Europe, labored under the terrific error of spoliative therapy. Despite the fact that he recognized and warned against the devitalizing effect of depletion, he not only bled in most diseases, but recommended venesection to facilitate the absorption of medicines. He had a large following in all parts of the world. He wrote: "If we compare the good which half a dozen sons of Æsculapius have accomplished since the origin of the medical art upon the earth, with the evil which the immense mass of doctors have done among the human race,

there can be no doubt that it would have been far better if there had never been a physician in the world." This sentiment, which was afterward wittily reiterated by our own Oliver Wendell Holmes, certainly reflects much truth, so far as internal medicine is concerned. The forlorn plight of therapeutics, its sad consequences for suffering humanity, cannot be depicted more eloquently than by this statement of the foremost physician of Europe, who was himself so enamored of the spoliative practice which he condemns that he was utterly unconscious of his own participation in it.

After figuratively wading through tales of blood-spilling, the diligent student of medical history is refreshed by the clear and rational teachings of Friedrich Hoffman, in "*De naturæ et artis efficacia in medendo.*" Inveighing against the habit of being bled, because "in the blood is contained the entire stock of vitality," he recommends a simple therapy, consisting of bland diet, cool drinks, and baths, mineral waters, milk, wine, lead, camphor, iron; and opposes the use of opium and other poisons.

A staunch defender of Nature among the multitude of bleeders was Gaub, professor at Heidelberg, who wrote the first book on pathology. He regarded Nature amply competent to remove disease, which he considered quite as natural as life or death.

Stahl is another great man who left a favorable impress upon therapy. He wrote: "Nature, the physician of diseases, offers a better prospect of curing them than the most perfect apparatus of our art." He warned

against too active medication and depletion, "which suppress the completely misunderstood efforts of Nature."

In France an outspoken opponent to depletion was Borden, who dubbed the Charité "the leech bureau." He lived in the latter half of the eighteenth century in Paris, when venesection was running riot. He disregarded plethora and valiantly defended Nature. Although he used the lancet, he warned against it in fever because "bleeding shatters the constitution and disturbs the function at a time when the organism requires all its vitality for the purpose of removing the disease." "Many a broken-down constitution," he writes, "is dragging itself around burthened with chronic disease as a result of disturbance and hindrance of Nature's work by bloodletting in acute diseases. In rheumatic and catarrhal diseases especially Nature is the sole curative factor."

While a reaction against depleting methods was brought about in France by the teachings of Borden, Castellot, and others, and by the conservative doctrines emanating from the great Montpellier school, the teachings and practice of Sydenham continued to be perverted by English physicians. Unfortunately many of them disregarded his warnings and blindly bled for all diseases.

The philosophic Cullen was an active bleeder, although, like Hippocrates, he warned against excesses; he laid down indications for drawing blood and prescribed tonics, stimulants, cinchona, wine, and opium.

Depletion still continued to sway the medical mind, however, until De Haen appeared

in the latter part of the eighteenth century. A true exemplar of rational medicine, he taught that "Nature must not be disturbed by powerful medicines." He prescribed chiefly absolute diet, cooling drinks, and mild cathartics. De Haen is the founder of the Vienna school of medicine, which was destined with interruptions to endure to the present day. His beneficent teachings struck the first decided and lasting blow to spoliative methods, and gave birth to greater trust in the vital restorative powers than had ever before been embraced by medical men. Some of his immediate successors, like Stoll and Peter Frank, neglected his teaching, while his later offspring, Skoda, exaggerated it into a therapeutic nihilism. Gottlieb Vogel and Peter Frank, men of great renown, bled without stint, but warned the students against syncope, and taught that the organism should be allowed to retain sufficient vitality, so that "we may not murder with the cupping-glass those whom the disease had spared."

As an evidence that Vienna was still the center of spoliative therapeutics in the latter part of the seventeenth century, let me cite Wollstein, formerly a most zealous bleeder, who seeing the error of his ways, became a violent propogandist against venesection. He candidly admitted having nearly killed himself with it and having since his youth spilled thousands of pounds of blood. He writes: "I now look back with horror upon the twenty years of my bloody activity, by which health, animal nature, vitality, and its best weapon against disease—fever—were destroyed, a practice into which I had been

decoyed by teachers and books.
 I know from my own experience no case in which bleeding deserves the name of a curative agent. Even in these troubles it helps only man; cattle and horses suffering in the same manner are not relieved by it. We should, we must, tremble in the application of an agent which makes weaklings of strong men and animals." Wollstein pointed out as no one before him, and until recently few succeeding him, have done, that the physician should not be deceived by occasional brief improvement of symptoms after venesection; he pleads for due regard of its evil after-effects. "If the patient survives it, destruction of body and mind are the sad consequences which the doctor will observe after a cure by the cupping-glass." The courage of his convictions aroused this simple doctor to a valiant battle with prejudices and practices which were universal. His voice, however, was too feeble to stem the tide of blood surging around him. Antagonists arose on every side and counteracted his warning.

In the last years of the eighteenth century the medical philosopher Gall exercised a favorable influence upon his contemporaries. Recognizing the natural conservative activity of the organism, he endeavored to restore that simplicity in therapeutics which had been so long lost in practice, and to show the fallacy of the view that because Nature sometimes attempted to relieve by spontaneous bleeding from the nose, hemorrhoids, etc., diseases may be prevented or cured by removing a great deal of blood. Like Hippocrates, Gall regarded bloodletting as a de-

vitalizing agent, which never weakened the disease, and only acted as a palliative by freeing the natural powers when plethora existed. He inveighed against these one-sided methods in acute diseases, which "by rough and forcible interference lowered the system," and warned earnestly against "those extravagant losses of blood which produce relapses and enfeeblement if they do not destroy life."

That the medical profession remained callous to the admonitions of these wise physicians is a deplorable fact, evident from the writings of that day.*

The close of the eighteenth century witnessed little abatement of spoliative therapeutics. With regard to medicinal agents it may be of interest to recall the fact that while in its earlier years many absurd remedies, like mummy, wood lice, dung, were regarded as efficacious, many medicinal agents were added which are of great value. Cin-

*A graphic picture of the practice at that time is furnished by Metzler, who "as the son of a country surgeon often saw in one day several hundred persons assemble for bloodletting, during the Easter holidays. Without any idea of medicine I was astounded by the indifference with which entirely healthy people, as well as those weakened by age or disease, allowed one or two pounds of blood to be taken, how one after the other dragged himself away faint and trying to refresh themselves by cold sprinkling of their faces, how they often made sport of persons lying in deathlike faints, and then seated themselves and allowed their blood to flow until they too grew weak and pale, often vomiting and sinking down exhausted. This silly action of the country folk astonished me, and this fearful effect of bleeding made a deep impression on my youthful mind. The correct ideas which I formed by reflection upon them were dissipated by the teachings of my professors at the medical schools. Fortunately I soon became convinced of the narrowness of the latter, how little I learned from them, and how

chona and opium were firmly established, despite violent opposition. Dover's powder was introduced; conium, stramonium, hyoscyamus, colchicum, were investigated by Stoerck, digitalis by Withering and Darwin, potassic solutions of arsenic by Fowler, acetate of lead by Goulard, corrosive sublimate by Van Swieten; oxygen was introduced for inhalation and mineral springs were studied; the external and internal use of water was introduced by Floyer in England, and by Friedrich Hoffman in Germany. The latter recommended cold baths "to restore elasticity to the solid parts." Hahn in Germany and Currie in England introduced the modern bath treatment of fever. Electricity was also introduced as a remedial agent.

The therapeutic attitude of the better class of medical men at the dawn of the nineteenth century is evident from the writings of Reil, who had distinguished himself by ad-

much I still lacked in medical knowledge. I therefore studied the ancients, threw aside the laboriously learned school knowledge, and endeavored to gather all the Hippocratic teachings as my guide. Thus I became a physician; thus I obtained my conceptions of blood-letting and found myself more content at the bedside." He relates how his practice diminished because he refused to bleed pregnant women, drunken priests, and hypochondriacal politicians. He was dismissed from the practice of one convent because he advised exercise, abstinence from priestly labors and gormandizing instead of bleeding. "I only bled when it was in accord with my principles, and I have never had cause to regret this practice. I have published my views from time to time; they have been read from Slavonia to Paris. I have written of the beneficence of fever and against the thoughtless use of bleeding, and all those remedies which practitioners so constantly ply like a trade for the calming and suppression of febrile movements, which are so often useful."

vocating the abolition of the medieval maltreatment of the insane: "Bloodletting is a very effective remedy, which alone is capable of saving life in some fevers and of paving the way in others. The untimely use of venesection is injurious; simple benign fevers do not require it, only the severe grades. Nature, not bleeding, removes fever. In inflammatory pneumonia a single bleeding restores expectoration, while excessive bleeding reduces the tone so that expectoration is absent and we are compelled to resort to senega, sulphur, etc. A bottle of porter often saves a patient who would have been killed by bleeding. Excessive and untimely bloodletting disturbs resolution, retards the crisis, slows convalescence, and sometimes produces effusions of lymph into the chest, with dropsy, suffocation, and apoplexy."

Readers of medical history are familiar with the Bruonian System, promulgated by the brilliant Thomas Brown. His stimulating practice is said to have "slaughtered more human beings than the French Revolution and the wars of Napoleon." This extravagant charge is probably the anathema of his depleting contemporaries, proclaimed upon his revolutionary doctrines.*

In America the depleting practice was advocated by the well known Benjamin Rush. He recognized but two types of remedies,

* It is stated by Haeser that Marcus, a follower of Brown, "consumed in his hospital at Bamberg in one year, 1 drachm of opium, 195 grains of camphor, 529 grains cinchona, besides other medicines, for each of 367 patients." How well endowed this hospital must have been!

stimulants and depressants. He called calomel the Samson of the materia medica; his opponents contended that he was right, since it had undoubtedly slain its thousands (Roswell Park). In his treatise ("Upon the Advantages which Bloodletting Offers in Many Important Diseases") Rush proves himself a valiant and ardent defender of venesection, recommending it even in infants six weeks old and in the aged. The teachings of Rush dominated American medicine for many years, practically without opposition.

Throughout the entire world the battle between the depleting and conservative practice went on, the former always represented by the great mass of physicians, the latter espoused by a few isolated spirits who displayed laudable courage in thus opposing the popular destructive treatment of disease. Among the latter was at this time Ernst Horn, who wrote (1803) that "the waste of blood should be punished just like every poisoning; indeed, physicians who permit themselves to be deceived into bleeding by real or imaginary fulness of the pulse by increase of heat, stupor, delirium, etc., should be deprived of practice."

How the same fallacious theory may form the basis of opposite modes of practice is illustrated by that interesting but fatal method of treatment of the Italian teacher, Rasori, who had become a warm advocate of the Bruonian stimulant and contrastimulant theory. He differed from Brown materially in that he regarded the latter as far more frequently indicated than the former. In an epidemic of typhus at Genoa Brown's

stimulating treatment was so destructive that Rasori afterward resorted to depleting measures in most cases. He not only used venesection freely in so-called sthenic cases, but he also applied it as a diagnostic feeler to ascertain whether to stimulate or depress. As if the hapless victims of this celebrated doctor were not yet miserable enough, he plied them with enormous doses of tartar emetic in pneumonia, which at that time prevailed extensively in Europe. A case of anasarca reported from the Genoa clinic received within fifteen days six venesections, of eighteen to twenty ounces, and forty-six ounces of saltpeter; a patient with pneumonia lost in eight days fifteen pounds of blood and received 220 grains of digitalis, after which he promptly died. Another case of elephantiasis received besides abundant venesection twenty-eight drachms of extract of aconite in gradually increasing doses.

It is a sad commentary upon the status of medicine in the early years of the present century to know that this destructive practice found a large following among European physicians, who modified it more or less. Disease continued to be attacked as an enemy hidden within the human body; the battle went on regardless of the injuries inflicted by the attacking forces.

Unhappily a brilliant clinician appeared at this juncture, whose contempt for the doctrine of Hippocrates acted as a blight upon rational therapy. Broussais, rhetorician, writer, theorist, sought to establish the so-called physiological school of medicine, a term as inappropriate as was his practice.

He claimed that numerous post-mortem examinations showed that most diseases are due to local inflammation, chiefly of the gastrointestinal tract. In the effort to meet these, leeches were applied to a ludicrous extent. It has been stated that 400 leeches were used daily in each ward of the Hôtel Dieu, and that the Parisian hospitals consumed six million leeches annually.

You are doubtless familiar with the history of this remarkable practice, which must have cost many lives, because the influence of Broussais and his brilliant pupil Bouilland among the Latins was far-reaching.

Again a courageous dissenter appeared in the person of Andin-Rivière, who was professor of hygiene in the Lycée de Paris in 1827. A true follower of Hippocrates, he scourged with the lash of brilliant rhetoric, sustained by statistics and clear bedside observations, the outrageous practice of Broussais. He refers to a mild epidemic of smallpox in 1824, in which 1136 persons died, nine-tenths of whom were subjected to repeated bleedings. Dr. Frappart ordered for one patient 1800 leeches, under which the latter promptly died. These statements brought Rivière before the courts, which mulcted him in the sum of 500 francs damages and prohibited his book! During the reign of the bloodthirsty Moloch few dared to rebel against the scientific ministers of this healer (?). Rivière suffered for his temerity.

So great continued the influence of spoliative medicine that the renowned Laennec actually prescribed moderate venesection and

large doses of tartar emetic in pneumonia, which proves that Laennec's therapeutic insight was not as deep as was his diagnostic skill. The latter is also evident from the fact that he attempted to create artificial sea air in the badly ventilated wards of his hospital, by scattering fresh seaweeds under the beds of his phthisical patients!

The time was now ripe for a reform! The great French school founded by Bichat gave birth to such men as Louis, Andral, and Magendie. These laid the foundation for exposing the fatal errors of Broussais and of his predecessors. Andral and Gavarret, whose blood studies were the pride of physiological text-books in my student days, opposed the spilling of blood and resorted to cathartics and emetics. Magendie, the father of modern physiology, exercised an enormous influence in favor of rational therapeutics. "Medicine," he wrote, "is nothing more than the physiology of the sick man. It is really depressing to examine the different remedies used in each disease. Let us examine how things are going in our Parisian clinics. Take a case of typhus. One practitioner treats it with purgatives, another with bleeding, a third with so-called tonics. Others, to which category I belong, allow the disease to go undisturbed through its various stages."

Nevertheless Magendie was not a therapeutic nihilist; for he investigated, with that acumen which has immortalized him, the various medicinal alkaloids, in order to obtain from animal experimentation positive results not to be obtained from crude drugs, thus conferring a lasting benefit, which we of

the present day still enjoy. He assisted most efficiently in overthrowing the fatal doctrine of local phlogosis urged so brilliantly by Broussais, and he insisted that "the entire organism must be regarded in our treatment of disease. It must not be forgotten," said he, "that a pneumonia patient suffers from something else besides a diseased lung."

Louis, who sought to establish the numerical method for proving the value of remedies, published a work on pneumonia to prove the inutility of venesection, whether it was copious or moderate. "The result of my investigations," he writes, "upon venesection agrees so little with the universal opinion that I hesitate to publish it."

In England many eminent physicians gradually abandoned extreme spoliative methods in acute disease and adopted an entirely opposite treatment in chronic diseases, which they regarded as due to debility. Iron, cinchona, and other tonics were judiciously applied in connection with hygienic and dietetic measures. To the credit of English medicine be it said that the first work upon the hygienic treatment of chronic diseases was written by Sir James Clark ("On the Sanative Influence of Climate"). Thus the seed for more rational therapeutics was sown among the leading medical minds of England, while the ordinary practitioners still continued to bleed and purge and vomit their long-suffering patients.

While rational methods of treatment, based upon professedly exact pathological and chemical data, were promulgated by the greatest physicians of France and England,

there appeared a reform movement in Germany—a new system, which was distinctly outspoken in its theory and diametrically opposite in practice to all former ones. I refer to homeopathy.

Hitherto the fanciful structures of the system builders were sufficiently strong to resist the incubus of venesection and depleting measures, which like a great ogre sat upon and overshadowed them all.

The voices which now and then were raised against these spoliative methods, though earnest and soul-stirring, proved too feeble amid the general acclaim for depletion. We are too familiar with the eccentricities of Hahnemann, which have been long inveighed against by many earnest physicians (called by his followers allopaths). And yet when we compare the crudities of Hahnemann with the fatal doctrines which have weighed like a nightmare upon the practices of our own predecessors, we may discern very little if any cause for the diatribes that have been launched against homeopathy. I am free to confess that medicine really is indebted to Hahnemann for having dared to set his face against the universal and fatal spoliative practice which dominated the entire medical world and oppressed even the most judicial minds. As you know, he depended entirely upon infinitesimal doses, whose inertness the following example shows. He writes: "When lycopodium is treated in the manner homeopathic art develops crude drugs, and one grain is brought by means of triple trituration of one hour, each time with 100 grains of milk-sugar, to the millionth

dilution and potency, a remedy of such wonderful activity is produced that one grain of it dissolved in 100 drops of dilute alcohol and twice shaken in the hands, results in a fluid which in the smallest possible dose is still too active in the disease for which it is appropriate. Not until the potentized sextillionth dilution is produced does the drug begin to be useful."

Such positively inert medication, to which he wisely added good dietetic and hygienic management, surely left the *vis medicatrix* full sway, and right royally did Dame Nature assert herself. Hahnemann thus became unwittingly the creator of an epoch in medicine, to which may be traced the reinstatement of the doctrines of Hippocrates and Erisistratus, untrammelled by the anatomical and physiological obscurity of their day.

THE RISE OF MODERN THERAPY.

Being for the first time in the history of medicine clearly defined, the issue between the spoliative and constructive management of disease was now approaching decision. Many of us have witnessed this contest. Let me rapidly trace its fortunes and draw from it some deductions for our mutual benefit.

Foremost among the modern reformers in medicine stands Hufeland, who wrote a severe arraignment of the absurdities of homeopathy, in which he exhibits the most judicial fairness. He wrote: "Medicine is a science of experience; practice or continuous experiment on human beings, and the experiment is not yet concluded. If we have allowed the Bruonians, and if we still allow the con-

trastimulants, to apply opium and other heroic agents in large doses, why should not the homeopaths have permission to use them in infinitesimally small doses? It is Nature which cures disease; art only bears its share in that it understands how to guide and aid it. It is infinitely better not to disturb this work than to confuse it by irrational and forcible measures, mislead its movements."

Krukenberg, of Halle, approached the true therapeutic ideal and served almost more than any one else in his day to advance rational treatment. He insisted that the physician should be filled with a pious regard for Nature. The organism must be taken as a whole. "Our art is undoubtedly capable of decisive action, but let it not mistake the fact that in many cases its activity is quite superfluous, in others quite void or inadequate, in many injurious. Indeed, what virtues are not assigned to one and the same remedy! When we read such commendations we seem to be actually standing in the presence of the mountebank's booth." These are words freighted with the spirit of truth, which should be taken to heart by all enthusiasts in medication!

Schoenlein, who taught in the Berlin University, was also a cautious exponent of this doctrine. Being intent upon curing rather than philosophizing, he used drugs without professing absolute faith in them, and when necessary he did not hesitate to bleed and use milder antiphlogistics.

Although the masses were still bleeding and blistering and purging, earnest protests against these spoliative practices became

more frequent and more authoritative. The new Vienna school was destined to play a leading rôle in this propaganda. Skoda's therapeutics were pithily stated by him as follows: "Air, water, cleanliness, and temperance are the best pills. And the drug store? Well, perhaps there is some good in that, too."

Dietl wrote (1845): "Of what use is it to ascertain valvular disease of the heart with the stethoscope, the formation of tubercles by the scalpel, the diminution of blood cells by the microscope, the increase of albumin in typhoid by the test-tube? We cannot cure these diseases, and typhoid is cured more surely if we leave it to the mild care of Nature. Nature alone can heal; this is the highest fundamental law of practical medicine, to which we will be forced to adhere even when a curative principle which is subordinate to it will be discovered. This chiefest fundamental law has been misunderstood in all times. The educated physician rarely has the courage to confess it to his patient. While the physician should not promise more than he can really fulfil, he should be active at the bedside, always ready to help. A rational treatment is therefore the highest aim of the physician, and the greatest benefit which suffering humanity expects of medicine. The principal thing is not to damage the patient—Nature produces and maintains; therefore it may also cure. Among all curative powers, the curative power of Nature must be acknowledged as the highest. What she cannot do we must endeavor to do; what she is capable of doing we need not do. An-

other able exponent of this school appeared in Wunderlich. He opposed therapeutic nihilism as hopeless, and justly taught that although in almost all forms of disease a number of cases recover without the physician and many other cases are lost in spite of all medical effort, there yet remains a considerable number of cases in which an intelligent intercession on the part of the physician is of most positive consequence. It is a very narrow conception of professional activity to suppose that its sole object is to restore health to the sick. Shortening of suffering, removal and mitigation of discomfort, protection against threatening dangers, are quite as serious duties."

The teachings of the Vienna and French schools exercised a favorable influence upon the leading physicians in England and America. In England we find them represented by the great Edinburgh clinician, Hughes Bennet, who wrote:* "Most diseases in vigorous constitutions, so far from having a tendency to destroy, have a marked tendency to get well of themselves, whilst instead of loss of blood, weakness, and prostration being remedies, they are sources of danger and the chief cause of a fatal result. I remember accompanying M. Louis many years ago in his visit to the Hôtel Dieu. Asking him what treatment he gave the numerous cases of severe erysipelas I saw there, he replied none at all, because they all get rapidly well of themselves in healthy constitutions. And I found it to be so. In the many cases

* Practice of Medicine, p. 295.

of erysipelas in the Royal Infirmary I have never given the tincture of iron or anything else but good diet, with lotions of acetate of lead, flour or oil locally to alleviate irritation, and I have not had a fatal case. It is the book of Nature, which is open to all, that we ought to peruse and study; and why should we read it through the eyes of past ages, when the light of science was comparatively feeble and imperfect, instead of bringing all the advanced knowledge of the present time to elucidate her meaning."

In a most philosophical and logical manner Bennet attacks the prevalent practice of bleeding and mercurializing, insisting that "the real tests of successful practice are not to be sought in the alleviation of symptoms, but in the removal of disease, and that treatment is the best which, *cæteris paribus*, causes the fewest deaths and brings recovery in the shortest time. He states that a vigorous antiphlogistic treatment of pneumonia was followed by a mortality of one in three cases; the treatment by large doses of tartar emetic, according to Rasori, by one in five cases; moderate bleeding, according to Grisolle, resulted in a mortality of one in $6\frac{1}{2}$ cases; the dietetic treatment combined with occasional small bleedings and emetics in severe cases (Skoda) gave one death in seven cases; and the purely dietetic treatment of Dietl one in thirteen cases—all being reports from large hospitals. The result of treatment directed to further the natural progress of the disease in the wards of the Royal Infirmary of Edinburgh under Bennet's care was one death in forty cases; there being no mortality in uncomplicated cases.

Bennet taught also that "the confident belief in mercury causing absorption of lymph is not only opposed to sound theory, but like the effect of bloodletting, it is not supported by experience. I cannot," says he, "resist the conclusion that the principles which led to an antiphlogistic practice in acute inflammations were erroneous, and are no longer in harmony with the existing state of pathology. Read the accounts of distinguished teachers and hospital practitioners as to the effects of bloodletting and compare them with what you have seen here with your own eyes of the successful treatment of inflammation. So powerful and so persistent have been the doctrines of the past that notwithstanding the facts which I made public in 1857 as to my results in treating pneumonia, and notwithstanding the fact that an antiphlogistic practice in this country is almost universally abandoned, every systematic work up to this date (1864) still recommends for that disease bloodletting, antimony, and calomel."

Here we have a true picture of the status of therapeutics in England in 1864.

These rational views percolated very slowly through the mass of the profession in America. Notwithstanding that Oliver Wendell Holmes had sent the shafts of irony into the ranks of the polypharmacists, and Bigelow had (1835) written his "Self-limitation of Diseases" and "Nature in Disease," antiphlogistic treatment continued in vogue until Austin Flint and his successor called a halt. How difficult this reformation was is evident from the severe criticisms made by the American editor of

Reynolds' System of Medicine in 1879 upon the advanced therapeutics of the English author, which conclude as follows: "The intention of these remarks is not to antagonize but to qualify the summary conclusion which the language of Dr. Reynolds appears to convey, that venesection and kindred measures may with advantage be dismissed as obsolete. Of names not yet antiquated in favor of the occasional and moderate use of the lancet in the early stages of acute inflammatory disorders it may suffice to mention Aitken and B. W. Richardson of England, Niemeyer and Wunderlich in Germany, Jacoud, Herard, and Count in France, S. D. Gross and Fordyce Barker in America."

The influence of the modern Viennese school upon therapeutics had now become quite pronounced, at least among the leading physicians of the world. Especially in acute diseases was its trust in Nature effectively applied. When, however, Virchow proclaimed in 1854 (*Spec. Path. and Therap.*, vol. i) a deviation of temperature as the pathognomonic sign of fever, and showed that it was due to increased tissue change which in its turn is traceable to an inhibition of the heat-regulating centers by the fever-producing element, and this was supported by exact thermometric measurements, the leading clinicians of Germany sought in the reduction of this pathognomonic sign the all-important therapeutic indication. Bartels, Juergensen, Liebermeister, and others endeavored to prove that an abnormally high temperature was really the chief lethal factor in the infectious fevers, and as a logical

corollary reduction of temperature was the chief aim in their treatment.* Digitalis, quinine, veratrin, cold baths, and later antipyrin and other coal-tar products were plied with might and main. At last scientific precision was in view; the thermometer demonstrated exactly the needs of the suffering system and its remedy. This doctrine spread rapidly, owing to speedy modes of communication, over the entire world. A new era seemed to dawn: antipyresis became the watchword, which has misled the medical profession as sadly as antiphlogosis had done in former years!

When our own Welch and others showed the untenability of the excessively lethal influence of high temperature, and when the uncertain quinine and salicylic acid as antithermics were replaced by the positive antipyrin, the eyes of calm bedside observers were opened to the fallacious theory and practice. They reasoned that if high temperature was really the lethal factor, the key to the solution of the treatment of acute diseases must be found in antipyrin! But, alas, though this agent reduced high temperature with positive certainty, its influence on the mortality statistics was either negative or actually unfavorable; the only advantage attained seemed to be that antipyrin permitted the patient to die with a lower temperature.

* Wunderlich, a leader of nihilistic therapeutics, even abandoned it when the thermometric observations for which he is noted, in typhoid fever, established the danger of high temperature, and sought in infusion digitalis a panacea for this disease. Its reputation lasted three years, when one of his own pupils, Thomas, overthrew its dominion.

This is the first instance in the history of medicine where a medicinal agent pointed the way to more rational treatment of disease, and was afterwards abandoned. One who has passed through the various therapeutic phases of the latter third of this century in the treatment of fevers, and who, like myself, was taught cupping, blisters, mercurialization, nauseants (nitrous powders), veratrum, and passed on to aconite, digitalis, salicylic acid, alcohol, quinine, antipyrin, cold sponging, and baths, can realize the enormous change produced by the discovery of the coal-tar antipyretics, the avidity with which they were taken up as a *magnum donum dei*, and the sad awakening when their vaunted curative action was disproved. Had this great discovery been made many centuries ago, when means of communication were meager, and methods of observation and investigation were imperfect, it would have required several centuries to demonstrate to physicians that they were pursuing an *ignis fatuus* when they sought in reduction of temperature the patient's salvation. Happily we live in a more favored time. Not alone have the damaging effects of medicinal antipyretics upon the excretion been clearly demonstrated, but the investigation upon the subject extended to clinical studies on the comparative effect of these antipyretics and the cold bath treatment. These were made chiefly by Ernst Brand and his follower, A. Vogl, who thus discovered that the beneficial effect of the cold bath was not due to reduction of temperature, inasmuch as its anti-thermic power was ludicrously inferior to

antipyrin. They correctly concluded, too, that the beneficent results from cold bathing in typhoid fever were really due to a refreshing stimulating effect upon a depreciated nervous system. This view had long been taught by Winternitz and other hydrotherapists, but had not been heeded until recent years. Thus the failure of the much-lauded coal-tar antipyretics had led to the enlightened and correct treatment of fever, chiefly by cold hydriatic procedures.

THE LESSON OF HISTORY.

Fellow alumni, I have sketched for you the lights and shadows of therapeutics from the pages of history. The colors are drawn from life, for I have permitted each exponent to speak in his own words. How does this rapidly drawn sketch strike the unbiased seeker after therapeutic truths? What lessons does it inculcate? How may a more useful therapy be evolved?

X We are saddened by the fact that the history of our profession is darkened by somber shadows cast by each epoch. When we reflect that medicine began its career under the glorious ægis of a Hippocrates, whose insight into the true aims and possibilities of therapy has been demonstrated to have been almost inspired and prophetic, so that we must recognize the fact that even to-day our therapeutics approach perfection only in so far as they approach the ideals of our great Nestor, our hearts must be bowed with sorrow over the painful revelation that twenty centuries have passed away in argument and disputation over the

treatment of disease, while suffering humanity lay prostrate, helpless victims of their errors—errors due to the neglect of the teachings of Hippocrates and to indifference to the warnings of a few brave and wise men who cried aloud in the anguish of sorrow and despair, urging a halt in the spoliation of human blood. If you accept without fear and without favor the testimony I have just cited before you, you cannot avoid this sad conclusion. Hippocrates himself with characteristic prevision foresaw it all, for he warned us that “disputes among doctors engender disrespect of the whole art among the people, so that they begin to doubt the existence of medical art. For in the treatment of acute diseases practitioners seem to disagree so much that what one declares as the best is by another thrown aside as the worst.”

Viewing the medical profession in the light of its own history, we can hardly be surprised that it has been the butt of satire from the time when Plato said that no gentleman should devote himself to medicine as a calling, to Molière and to the present day, when, as in a recent newspaper discussion on Kipling's recovery from pneumonia, a writer was applauded who regarded pneumonia as less dangerous than the doctors who treat it.

While in the sanctity of our alma mater's home I unburthen the sad thoughts which the contemplation of the history of therapeutics inspires, I am not oblivious to the fact that other professions are not exempt from error. Let us not therefore condemn our predecessors, who often accomplished

wonders under the most inauspicious conditions, and who were misguided by false lights, their pathway not blazoned by knowledge which has since their day and generation dawned upon us. Let us rather endeavor to draw from their deeds and writings lessons that may inure to the advantage of suffering humanity, which entrusts its best interests into our frail hands.

This is the burthen of my words to you to-day!

What are the chief errors which the history of therapeutics emphasizes?

1. The persistent effort to attack disease as an entity—an enemy which has invaded the human body and which must be driven from its stronghold. With few exceptions this idea, as I have shown, pervaded the theory and practice of all physicians so completely that even many enlightened practitioners of the present stagger under it. The disease is treated; it is attacked by the doctor with might and main. In acute cases phlogosis among the ancients, inflammation among the moderns, demanded venesection, purgatives, emetics, and revulsives. With few exceptions the ruling idea was to weaken the enemy, to destroy him. The result was disastrous. The doctor and the disease fought the valiant fight to a finish—but too often the patient also was finished! Being the battle-ground between the contending forces, he suffered from both. If he succumbed, the disease was charged with the victory; if he survived, the remedies of the doctor received the credit. How fallacious this idea is is clearly shown by history.

Bacteriology has discovered certain microorganisms, which appear to be present in certain diseases, and great industry is displayed in searching for remedies that may be antagonistic to these under the false idea that they constitute the disease. Let the search for specifics continue, but let us not permit ourselves to be misguided by the noble ambition and continue to fight disease with antiseptics and antimycotics which cannot reach the microorganisms that have entered every recess of the suffering body, and which would damage the latter, if they were capable of destroying the former.

Until other specifics are positively found, I would urge upon you *not to treat the disease, but the patient.*

2. Another error pointed out by medical history is the *neglect of the Hippocratic teachings regarding the vis medicatrix naturæ.* The sad consequences of this neglect run like a darkening shadow throughout the entire history of therapeutics. Now and then men like Erisistratus among the ancients and Hufeland and Audin-Rivière among the moderns attempted, as we have seen, to recall their colleagues from their false practices. The regulative capacity of the human organism, which had been observed by them, had embedded itself in their minds, and they sought with all the earnestness of their natures to convey its salutary tendencies to ears which, alas, proved deaf to the most eloquent appeals. Not until the latter half of the present century do we find their warning lessons heeded. The Vienna school, led by Skoda and confirmed by the success of medicinally

inert homeopathy, inaugurated a nihilistic practice, founded upon what they regarded as a scientific basis. The physician, it is true, now occupied a more dignified position; he no longer attacked disease. But he erred in the opposite, though not so destructive, direction of trusting too much to Nature. The therapeutic nihilist failed to realize that even in health he does not trust to Nature alone, but aids her by proper care in habits, removal of irritating elements, etc., and that in disease there is often even greater demand for aiding Nature in the execution of her beneficent designs. Moreover the patient, distressed by illness, was not content with the improved exactness of diagnosis nor with the more scientific attitude of his doctor. Such is suffering human nature. The sick man clamors to be cured; he not only wants to know the nature of his ailment and its probable outcome, but he demands to be placed in the best possible position to attain a pleasant and rapid recovery. The doctor cannot stand an idle spectator of Nature's process of cure; he feels himself impelled to act, to act promptly and wisely. This brings me to another error in the therapy of the past and of the present time.

3. *The treatment of symptoms.* The nihilistic treatment of disease introduced by Skoda and practiced by his followers did not satisfy the people, who demanded active treatment when sick. To meet this serious issue, the expectant method was evolved, which claimed for its object the treatment of disagreeable, painful, or threatening symptoms, the forestalling of dangerous enfeeblement, by timely

and abundant nutrition and stimulation. Being a vast improvement upon spoliative methods, more satisfying, and really more effective than the nihilistic method, it rapidly obtained a large following in all parts of the world. It is to-day the accepted treatment of all acute and many chronic diseases. In the eagerness to satisfy the urgent demands of the patient or of the disease, the physician errs in the opposite direction when he attempts to meet every symptom. Hippocrates regarded bleeding as a valuable remedy because it relieved pain in the side, and many modern remedies have attained reputations because they relieved symptoms. *Veratrum viride* reduces the pulse to normal, digitalis increases its tension; antipyrin reduces temperature to normal; chloral and sulfonal produce sleep; morphine relieves pain. Besides these positive remedial agents there is a host of others, which have obtained more or less repute, through commercial propaganda or medical self-deception. Thus the *materia medica* has grown enormously, until to-day scarce a day passes without your receiving a circular or an agent vaunting this and that remedy for this and that symptom, and sustaining its claims by scientific and pseudo-scientific statements. The physician has learned sadly by experience the utter fallacy of these claims. He realizes that while the reduction of pulse and temperature by medicines may give temporary comfort, they are toxic agents which depreciate the vital strength. *Veratrum* produces collapse, morphine checks secretion, chloral enfeebles the heart, and the coal-tar antipyretics have

been proven to interfere with excretion of urea. Nevertheless we need not hesitate to use the latter moderately in diseases of brief duration—to relieve muscular pains, to reduce high temperature, to produce diaphoresis. They are valuable remedies for the production of comfort in the diseases in which there is no toxemia, and even in the infectious fevers an occasional dose is comforting without being harmful.

Cold ablutions and baths have been ascertained to be less actively antithermic, but their effect being refreshing and antifebrile, they have become the favorite modern treatment for fevers.

Bloodletting was used by Hippocrates for subduing pains in the side in pneumonia and allied affections. His practice was followed for 1800 years ere its harmfulness was realized. Morphine has proven equally efficacious and less harmful; hot poultices and later cold compresses soothe the pain in most cases. A milder and less damaging treatment of this symptom has thus been evolved, and yet the patient's comfort is not neglected. The routine treatment of symptoms must, however, be constantly striven against; the patient's demand for relief must be met, but not when more harm may result from following our sympathy than good from our judgment. This is the lesson of history.

4. The attempt to elevate medicine to the rank of a science is another error emphasized by history, which clearly demonstrates that the accumulation of data and the speculation upon theories do not make a science. Medicine cannot reach beyond the limit flatter-

ingly assigned to it by Bacon, who called it "a conjectural branch of the natural sciences." Despite the enormous mass of positive data accumulated during the latter half of the present century—*i. e.*, during the most brilliant period of medicine—the latter still occupies the position of which Virchow wrote in his salutatory editorial of the *Archiv fuer Anatomie und Physiologie*: "Therapeutics must rise from its empirical standpoint; cultivated by practical physicians and clinicians and combined with pathological physiology, it must be elevated into a science, which up to this time it is not." This was written fifty years ago, and it is true to-day! The reason is evident. Therapeutic problems involve so many uncertain and indefinite premises that deductions from them must be equally inexact and therefore unscientific. Nevertheless the search after positive data must continue, in order that a medical art may be constructed upon a scientific basis. Such a therapy is now in process of evolution in the modern development of the hygienic, dietetic, climatic, and hydriatic management of patients, as illustrated by typhoid fever among the acute and phthisis among the chronic maladies.

Having pointed out the therapeutic errors of the past and present, let me state as briefly as possible what I humbly conceive as the remedy. Therapeutics will not be perfected until we return to the simple teachings of Hippocrates, which have governed some of the best minds of our profession, even when their judgment was obscured by darkest ignorance of the processes of health and disease, which misled their striving after truth.

Standing in the brilliant light of latter-day physiology and pathology, aided by epoch-making discoveries in bacteriology and chemistry, and provided with instruments of precision, we are in a position to avoid the errors of the great Nestor, while striving to attain that deep insight into the processes of Nature which he taught to be the surest guide to the true art of healing.

A normal relation between the income and output of the human organism, an exact performance of work by each organ for the production of heat and labor in the maintenance of life—these represent a condition of health. They are governed by laws as inexorable as any law of Nature. The entrance of an etiological factor which disturbs these normal conditions does not suspend these laws, but directs their operation to the effort of readjusting the disturbed relations, by diminishing the work of one or more organs and increasing that of others—all with the single purpose of protecting the suffering organism against damage and death.

Ripened experience leads me to reiterate to-day what I said over a quarter of a century ago.* “As the healthy organism stands under the maternal protection of the laws of Nature, so does the disease. How else can we explain those remarkable processes, whereby health results from the chaotic and turbulent forces that violently assail the human economy?

“To these laws do we trace that *vis medicatrix* whose guidance we should ever seek,

* Presidential address before the South Carolina Medical Association, 1873.

which arouses the whole organism to rebellion, when it is invaded by noxious agencies that endanger its integrity. *Disease is not the negative of health, for the same forces which are silently evolved in the normal and peaceful action of life are aroused from their quietude by unfriendly influences.* Order and law reign even where the human eye discerns only labyrinthine confusion and disorderly turmoil." Having held this view for the greater period of my professional career, I have derived more satisfaction and consolation from it than from all the books in my library. When difficulties assailed me and doubts threatened to obscure my judgment, I paraphrased Cromwell's warning, "Trust to God and keep your powder dry," into "Trust to Nature and be prepared to act."

The turbulent manifestations of disease are often but evidences of the antagonism between the action of the etiological factor and the activity of the curative factors in the organism. If the former prevail the patient succumbs or the disease becomes chronic; if the latter predominate the patient succumbs.

Rest, exercise, heat, cold, food, drink, light, air, baths, avoidance of unfavorable conditions—these are the means which unconsciously and automatically operate for the maintenance of healthy conditions. Their adaptation and utilization by the physician may restore the disturbed equilibrium in disease. Their regulation requires more judgment and skill than the prescription of medicines, because they are more flexible, less easily applied, and less rapid in effect. They are unfortunately not so well taught

and understood as is the *materia medica*. Do not understand me as despising the latter. Among the vast array of useless articles it contains some remedies—alas, but too few—that may be of great value, if judiciously applied, and without which I should feel myself shorn of considerable influence. It should be the chief aim, then, of the modern physician to treat the patient and not the disease, by girding the former with strength to withstand the latter, whether it be by physiological agents, as baths, by bacteriological products, as antitoxin, or medicinal articles, as quinine, always with an eye single to the safety of the patient.

The multiplication of remedies for each disease has done much to retard the advance of therapeutics. Simplicity is the first prerequisite to precision and success.

Let me cite briefly a practical illustration of the beneficent evolution of modern therapy, which I have drawn from that familiar disease, enterocolitis, the so-called summer diarrhea of infants. Time was when this very common disease was treated as an inflammation of the bowels, with leeches, poultices, mercurials, and other antiphlogistic and spoliative measures. Later a more conservative course was adopted—laxatives, chalk mixture, opiates, and astringents being the chief remedies.

Fellow alumni, you have doubtless, like myself, experienced much anxiety and sorrow in these cases, and you have, as I often have, dreaded to encounter them. How helpless were we to save these little sufferers—how impotent even to prolong their lives!

They died from marasmus or from so-called spurious hydrocephalus. I say candidly there is no disease in which I felt the inadequacy of my art so keenly as in these trying cases, until Soxhlet, Escherich, and others demonstrated them to be chiefly traceable to the ingestion and multiplication of microorganisms present in the food, which produced pathological changes analogous to those resulting from septic microorganisms. Like the latter they produce heat, redness, and swelling, with all their concomitants and sequelæ, only modified by the location and functions of the parts involved. This clearly ascertained pathological fact has led not only to the prevention of the disease by proper sterilization of the food of infants, but it also afforded a key to its management. Thorough cleansing of the affected tract, best accomplished by lavage and enteroclysis, and in cases accompanied by much fever cool ablutions and baths to refresh the depreciated nervous system, have revolutionized the results in these cases. Whoever has, like myself, witnessed how these withered little creatures, with their stony gaze, parched lips, wizened faces, and panting chests, gradually sank into coma and death, while their vitality was being sapped by choleraic stools which neither astringent nor opiate could safely control, and who now sees these same sad cases quickly bloom into health and joyous child life under the modern management, must feel as grateful for living in this happy era as is the surgeon who has passed from the septic into the aseptic era of his calling.

A successful therapy has been evolved from scientific basic data. The dawn of a happier therapeutic era is upon us. Under earnest investigation of the laws of organic life, under incessant search for and recognition of errors, the evolution of therapy will go on to the end of time.



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