

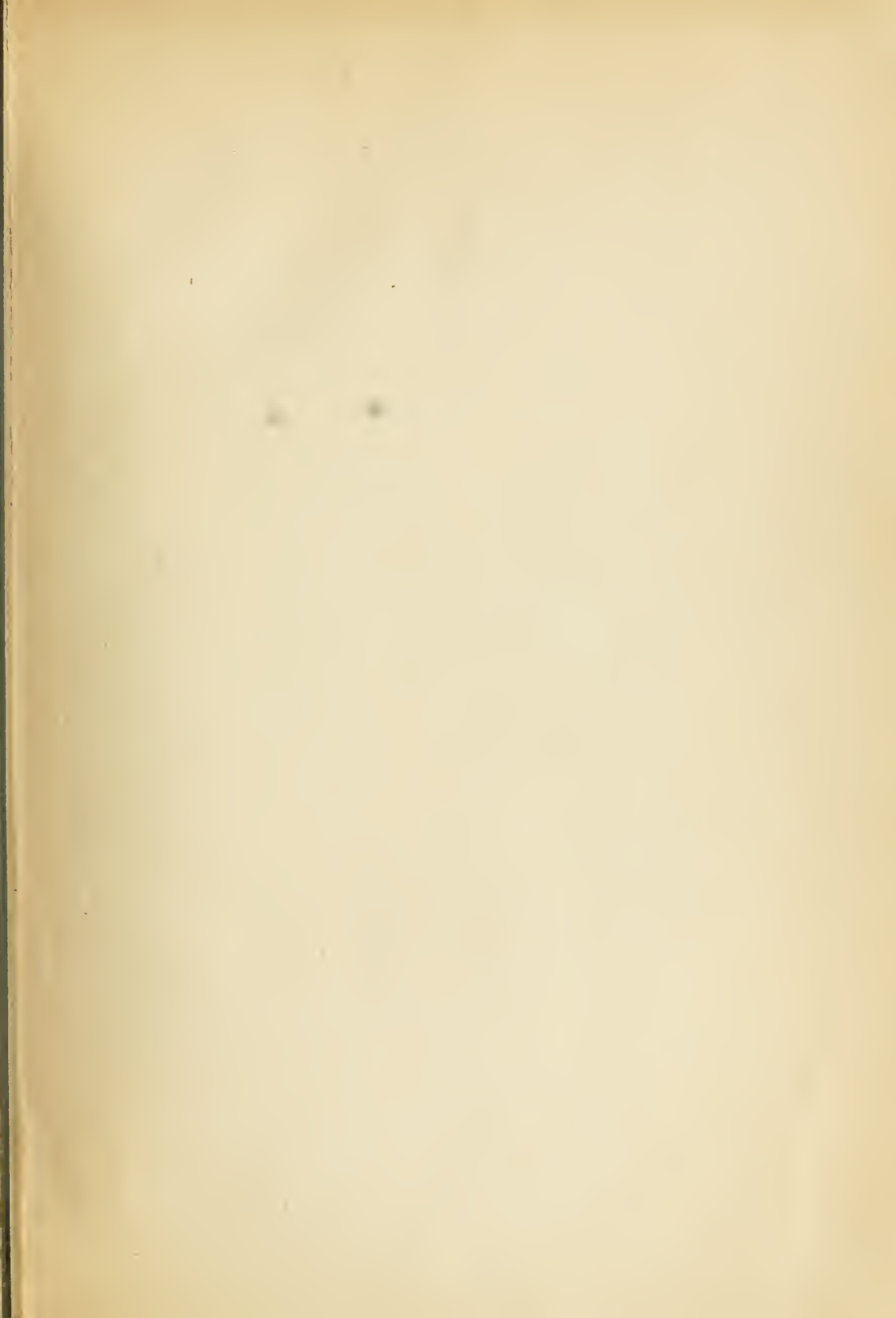






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# ANNALS OF MEDICAL HISTORY

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NUMBER I

## NOSOGRAPHY IN MODERN INTERNAL MEDICINE

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### SYDENHAM AND THE NOSOLOGISTS



WHEN interest in promoting medical science by independent research had been revived with the Renaissance, anatomical investigations were made the chief starting point in the quest for wider knowledge. In the beginning of the fourteenth century the practice of human dissections was begun at the Italian universities of Padua and Bologna, and with the steadily increasing number of dissections, a knowledge of anatomy was gradually gained, which reached its climax in the crowning achievements of Vesalius. Modern physiology had its beginning in Harvey's discovery of the circulation of the blood and in Malpighi's demonstration of the capillary system. Through the work of these three great men the foundations of human anatomy and physiology were laid. In pathology it proved a far more difficult and laborious task to provide a basis for a scientific structure.

In the early studies of normal anatomy some interest was exhibited in the pathological changes occurring in the viscera; Vesalius himself is even supposed to have left an important work on this subject, which has, however, been lost to posterity. Other anatomists had their eyes open, too, but what they saw remained to them disconnected observations, curiosities, and abnormalities, from which were drawn no conclusions of importance for general pathology. In this field the authority of the ancients, of the Arabian philosophers, of Galen and Hippocrates, was still dominant, and when the first attempt at emancipation was made, the process consisted chiefly in making more or less vague deductions, based only to a slight extent on actual observation. Scientists revelled in theories and systems, more particularly in the hazy chemical theories of the Arabians, which had been disseminated among the physicians throughout Europe by Paracelsus. These theories form the earliest beginning of chemical physiology and the chemical conception of pathological phenomena.

It was not until the seventeenth century that scientific enquiry was seriously brought to bear on pathological problems, and an attempt was made to advance by means of anatomical and physiological researches.

As one of the most noted representatives of the anatomical school may be mentioned the Dane, Thomas Bartholin. He was among the first to publish large collections of pathological observations, partly reports of clinical cases and partly post-mortem findings, in his "*Historiarum anatomicarum et medicarum rariorum centuriæ v et vi*" and in his "*Epistolæ*." In his last years he planned and made studies for a large work, an "*Anatomia practica*" which was to contain a collection of the post-mortem findings in all organs. These studies were lost in a fire which destroyed his house, and Bonetus in his "*Sepulchretum*" accomplished the task which Bartholin had set himself. Bartholin, however, made only disconnected observations, and we may search his published work in vain for any general pathological points of view. A zealous but rather uncritical endeavor to collect curious cases stamped Bartholin's activity as a pathologist, and this is generally characteristic of the school he represents.

His contemporary and close acquaintance, Franciscus de le Boë, or Sylvius, at Leyden, sought, on the other hand, to construct a pathology out of the anatomical and physiological knowledge and theories of his age. Like Bartholin, Sylvius studied both normal and pathological anatomy, but first and foremost he was the representative of the iatrochemical school. He continued the work of Paracelsus and especially of van Helmont in developing chemical physiology, and he deduced his pathological system and his treatment of patients from theories in which the notion of the acid and alkaline fluids of the body, and morbid changes brought about by fermentation, played the chief part.

Through his assiduous activity as a teacher in Holland, to which country all learned medical men flocked, Sylvius

diffused his theories throughout Europe, where his disciples further elaborated his system. In England he had a famous successor in the physician, Thomas Willis, and about the same time there also appeared a number of prominent experimentalists, as Robert Boyle, Hooke, Lower, and Mayow, who initiated the accumulation of knowledge concerning the physiology of respiration and gave further support to the iatrochemical school. It was also in England, however, during this stirring period, so significant to English intellectual life, that the man lived and worked who was the severest opponent of the speculations of the iatrochemists, and who first consciously and clearly gave clinical observation its place of honor as a scientific method—Thomas Sydenham.

In contrast with the leading pathologists on the continent, Sydenham was exclusively a clinician, and strictly confined himself to the immediate observation of pathological phenomena. He was, not without reason, the intimate friend of the philosopher, John Locke, who was but a few years his junior, and who is generally regarded as the founder of empirical philosophy; and he was an ardent admirer of his countryman, Francis Bacon. The latter, in his book on the "*Advancement of Learning*," had pointed out the two chief ways in which he thought medical science might be advanced. In the first place, he advised a revival of Hippocrates' old method of recording an account of the various cases, with their course towards recovery or death in order that, through such observations, the description of diseases, which had been undertaken in ancient Greek medicine but had since been quite discontinued, might be amplified and extended. In the second place he held that the pathological changes in the organs, the "*footsteps of diseases*" should be studied by anatomical investigations and the findings compared with the manifestations and symptoms of disease during life.

As already mentioned, medical science was fairly launched on this latter road be-



fore Bacon's time, but bedside observations were not very frequent. The various theories concerning the character and nature of diseases still formed the center of interest.

As against this, Sydenham advocated a sober observation of morbid natural phenomena, and he thus reestablished the broken connection between ancient and modern medical science. His influence was enormous, and the most interesting thing in his work is the clarity with which he set forth his method of research, only equalled in importance by the results he obtained and the advances he inaugurated. For these reasons he may be called the founder of scientific nosography.

In the introduction to the third edition of Sydenham's chief work on acute diseases which appeared in 1675, he gives an account of the principles on which his scientific activity was mainly based. His first passage is as follows: "After long deliberation and many years' close and faithful observation, I resolved (1) to communicate my thoughts relating to the manner of making farther advances in physic and (2) to publish a specimen of my endeavors in this way."

In his view the best manner of advancing "physic" would consist in the first place in providing a genuine and natural description or history of all diseases, a sort of natural history of disease, and in the second place, in laying down a fixed and complete method of cure for each disease. The proper description of the diseases he held to be far more difficult than generally supposed. The following principles ought to be observed:

In the first place, all diseases should be reduced to certain definite species with the same care which we see exhibited by botanists in their description of plants.

Next, all hypotheses and philosophical systems should be entirely set aside and the pathological phenomena should be described with the same accuracy that a painter observes in painting a portrait. Nothing has done so much harm as those physiological hypotheses which permit the authors

to ascribe to the diseases certain symptoms which exist only in their own brains, or allow them to exaggerate certain symptoms which happen to fit in with their own theories. While referring to these symptoms, they magnify rats into elephants, they entirely neglect other symptoms which do not fit into their systems.

In the third place, in making the description, the particular and constant symptoms should be well distinguished from the accidental phenomena, which may vary with the age and constitution of the patient, or depend upon different forms of treatment.

Finally it should be observed at what season of the year the disease occurs, as some diseases follow the season as surely as many birds and plants. This is not the case with all diseases, but when it does occur, knowledge regarding this point is of great aid in determining their species and in effecting their extirpation.

Behind these principles of Sydenham's for evolving a scientific nosography there is the firm conviction of the possibility of drawing up a complete picture of each disease, a conviction which was not then current. "And, in truth," says Sydenham, "it is my opinion that the principal reason of our being yet destitute of an accurate history of diseases, proceeds from a general supposition that diseases are no more than the confused and irregular operations of disordered and debilitated nature, and consequently that it is a fruitless labor to endeavor to give a just description of them." In opposition to this point of view he insists that morbid phenomena are subject to laws. The symptoms "observed in Socrates in his illness may generally be applied to any other person afflicted with the same disease, in the same manner as the general marks of plants justly run through the same plants of every kind. Thus, for instance, whoever describes a violet exactly as to its colour, taste, smell, form, and other properties, will find the description agrees, in most particulars, with all the violets in the universe."

The scene of Sydenham's labors was unusually favorable for his observations, since the sick rate of London in his day was enormously high compared with that of modern times. One murderous epidemic succeeded another, and all the more chronic diseases flourished luxuriantly. In 1667, out of the 500,000 inhabitants of the city, some 16,000 died, while only 11,000 were born, and two years before this the plague had swept away 100,000 inhabitants. By 1667 the plague had ceased, but about 1,300 died of smallpox, 2,000 of cholera, 3,000 of phthisis, etc., and only 1,000 of old age.

Sydenham's first work dealt with the acute diseases, and by noting the course of the epidemics and the occurrence of the disease at different seasons he was aided in laying down the chief symptoms of these diseases. His description of the smallpox is a model of conciseness and has retained its worth until our day, and he made admirable descriptions of dysentery, cholera, the plague, etc. He was the first to diagnose measles and scarlatina as distinct diseases.

The task of describing the chronic diseases seemed to him far more difficult. Here he was deprived of the assistance furnished by the epidemic occurrence of the disease. It was his constant hope, however, to live long enough to provide a description of these chronic diseases as well. He had only time to give fragments, but these are of great value. Famous is his description of the gout (podagra) from which he was himself a sufferer. It was not until Sydenham described this disease that it was finally clearly differentiated from rheumatism. His description of hysteria, the psychic character of which he established, is classical; his treatises on dropsy, on syphilis, etc., are also important. He also gave the first description of St. Vitus' dance (chorea minor). Dispersed throughout his writings, we find the record of many other new and important observations. Sydenham's description of diseases is concise and lucid. We

never find him quoting other authors, as is so frequently done, for instance, by Bartholin. When a young physician asked him what he should read in order to improve himself in his profession, he answered: Read "Don Quixote." So little did he respect contemporary learning. He demanded independent observation which took nothing for granted. His description of symptoms is never detailed and verbose. That his descriptions have so long been regarded as classic is because he understood so well how to point out the fundamental characters of a disease together with due consideration of its course and development. He possessed the artistic instinct of the great clinician, the power of seeing what is essential and of passing by immaterial details, and, as we have already seen, with him this was a conscious purpose, a programme, a method.

Two classes of people equally retarded the advance of medical science after Sydenham. One class consisted of those who, idle themselves, considered even the least efforts of others objectionable and excused themselves with their great respect for the old authors. To the other class belonged those who, desirous of posing as superior intellects, brought forward a wealth of arguments and speculations, quite futile when it came to curing disease. These speculative and constructive physicians were the chief butt of Sydenham's polemics, and in his views on this point he was warmly supported by his friend John Locke.

Locke had himself been trained for the medical profession and had practiced as a physician in his youth. In his work he was intimately associated with Sydenham. They visited patients together, for instance smallpox cases, and in the preface to his book on the acute diseases Sydenham expressly states that Locke fully endorsed his opinions. Among Locke's posthumous papers we have various unfinished manuscripts dating from this period of cooperation in which he further supports Sydenham's ideas. His criticism, too, was principally directed against the "chemi-

atrical" speculative tendency in medicine. In his "Ars medica" (1669) he writes that he who thinks he will become an able physician by studying the doctrines of the humors, or that his knowledge of sulphur and mercury will help him in his treatment of a fever, "may as rationally believe that his cook owes his skill in roasting and boiling to his study of the elements, and that his speculations about fire and water have taught him that the same seething liquor that boils the egg hard makes the hen tender."

Sydenham had a very low opinion of the chemical school. "He blamed those who believe that medicine is to be promoted by the new chemical inventions of our day, more than by any other process whatsoever." Still he fully recognized the utility of chemistry when it came to preparing medicines. Famous are his words: "How I can make a patient vomit, and how I can purge or sweat him, are matters which a druggist's shopboy can tell me offhand. When, however, I must use one sort of medicine in preference to another, requires an informant of a different kind—a man who has no little practice in the arena of his profession." He assigned far greater importance to anatomy as a guide to the physician: "He who wants this knowledge is like a man fighting blindfold, and a mariner without a compass. Moreover, the knowledge is easily attained. Nevertheless, in all acute diseases—and two-thirds are acute—we must fairly own that there is in their nature something divine—some specific property which no speculations deduced from the contemplation of the human frame will ever be enabled to discover and exhibit." Locke made quite similar remarks in his fragment "Anatomica" dating from 1668.

Thus we see, already at the first appearance of nosography, that tendency to a divergence between clinical and analytical science on the one hand, and theoretical and deductive science on the other, which has characterized so many discussions in the past centuries and has rendered them

particularly acrimonious because of the failure to distinguish sharply between the theory and practice of medicine. The theorist draws unjustifiable inferences and applies them practically, and the clinician, noting with grief all the disappointments and disasters caused by such unjustifiable and immature deductions, indignantly turns against the theorist. And if there has been any time in which an unjustifiable application of theories and speculations flourished it was during Sydenham's time. In his day there was a wide chasm between the scientific anatomical enquiries and chemical theories of the learned physicians and the doctor's practice at the bedside.

In Sydenham's writings we therefore again and again find severe polemical sallies against the speculative theorists. Sydenham was, above all, the physician, and therapeutic directions fill a very large space in his works.

He was not, however, entirely free from a speculative bias in his own therapy, though his system was simple and lucid. It started with the conception that in ague the organism, through fever, "boiled" the disease-provoking substance and discharged it with the perspiration. He adhered to the notion, inherited from the ancients, of the inherent healing power of nature, and his method of cure consisted in aiding nature with various evacuants. Attention should be called to his later doctrine of specifics, because it is so intimately connected with his whole conception of diseases as specific natural phenomena subject to particular laws. The starting point of this conception seems to have been his experiences with quinine. Quinquina had just then been brought to Europe from Peru. Sydenham soon observed its effect in the ague and saw that it acted entirely without the assistance of the usual evacuations. Thus it had actually a specific effect in this particular disease, and henceforward it must be considered the chief task of physicians to find such specific remedies, however difficult this might seem. Sydenham himself declared that he knew of no other specific than quinine. He did not

consider mercury and sarsaparilla specifics, for, although they cured syphilis, their effect was probably due only to the salivation and perspiration they promoted. Sydenham entertained no doubt that the Creator had provided specific remedies for the chief diseases, and referred to the circumstance that so few of all the many different plants had been examined for their curative effects.

After the death of Sydenham, in 1682, John Locke, in a letter to Dr. Th. Molyneux, wrote the following slightly pessimistic testimonial which gives us a good idea of Sydenham's aspirations:

I hope the age has many who will follow his example, and by the way of accurate practical observation, which he has so happily begun, enlarge the history of diseases, and improve the art of physic, and not, by speculative hypotheses, fill the world with useless though pleasing visions. I wonder that, after the pattern Dr. Sydenham has set them of a better way, men should return again to the romance way of physic. But I see it is easier and more natural for men to build castles in the air of their own than to survey well those that are to be found standing. Nicely to observe the history of diseases in all their changes and circumstances is a work of time, accurateness, attention and judgment, and wherein, if men through prepossession or obstinacy mistake, they may be convinced of their error by unerring nature and matter of fact, which leaves less room for the subtlety and dispute of words.

Sydenham himself regarded his work merely as an initial stage in the description of diseases. For the description of acute diseases alone "the work of centuries would not suffice," but he thought he had pointed out the right way to proceed. "I am like a grindstone," he says, "which without itself being able to cut, yet continually whets the iron."

Despite this plain indication of the road to be followed, Sydenham had no immediate successor. This was hardly due alone to that propensity in scientists to build castles in the air, to which Locke alluded, but

rather to the fact that the program laid down by Sydenham was not so easy to follow as would at first sight appear. As a matter of fact his directions concerning the method to be followed in the description of diseases were quite insufficient. They might be followed, at any rate in part, in the differentiation of various acute epidemic diseases which are characterized by occurring at different ages and at different seasons, but how should the physician be able to draw up distinct pictures from the varied mass of symptoms present in patients suffering from non-epidemic and especially from chronic diseases.

Advance might be made on some few points through unusual powers of clinical observation, such as Sydenham himself possessed, but a method rendering systematic work possible had not been found. And so we see the pathological investigators of the next century taking other courses. Leading clinicians such as Boerhaave, Hoffmann and Stahl were chiefly occupied with general pathological deductions and the framing of ingenious pathological systems. It is true that Boerhaave was a warm admirer of Sydenham and spread his fame all over Europe, but he himself was rather a brilliant teacher than an independent clinical investigator, and he did not inherit the chair of de le Boë (Sylvius) at Leyden without being in some measure influenced by the chemiatic speculations of the humoro-pathological cast of the latter. At any rate we cannot assign any important advance in clinical knowledge to Boerhaave, however great his fame, and the same may be said in the main about his numerous pupils. But in his century a mass of material was collected through individual pathological and anatomical investigation which gradually provided a substructure for later pathological knowledge and clinical reasoning. As said before, Thomas Bartholin had already inaugurated this direction of clinical progress by his sedulous activity in collecting pathological observations, and further experience was steadily gained in

the eighteenth century until Morgagni in 1760 published his great work "De sedibus et causis morborum."

There was as yet, however, no intimate connection between these anatomical observations and clinical concepts or pictures of diseases. Through the study of epidemic diseases (varicella, influenza), and of blood-poisoning (ergotism, lead-poisoning, scurvy), an ever widening knowledge of clinical medicine was attained; various nervous diseases such as sciatica (Cotugno), trigeminus neuralgia (Fothergill), paraplegia in spinal caries (Pott), angina pectoris (Heberden), etc., were described, but these additions to knowledge were made independently of the simultaneous development of theoretical knowledge and they must be looked upon as casual gleams of light rather than as the results of a methodical effort.

In the beginning of the eighteenth century, however, there was one man who attempted a direct continuation of Sydenham's nosological work and more particularly sought to carry out Sydenham's idea of describing the diseases in the same way as botanists describe plants. This was François Boissier de Sauvages, a scholar who flourished at Montpellier and published a small book, "Traité des Classes des Maladies," in 1731. He was himself a botanist besides being a physician and in his book he now sought to group the diseases in classes, orders and genera, just as natural scientists were at that time occupied in arranging plants and animals in a perspicuous system.

Such an attempt to place and group all diseases in a definite system was quite a new departure, though a few very imperfect attempts in this direction had been previously made, such as those by the Swiss physician, Felix Plater, in 1602, and the Amsterdam physician, Johnston, in 1644.

It is difficult to judge at the present time of the amount of sensation caused by Sauvages's work at the time of its appearance, but one man at least was greatly impressed by it, namely, the Swede, Carl

Linné. Linné was then studying in Holland where he graduated as a doctor of medicine in 1735, the same year in which he published his "Systema naturae." From the moment of first reading Sauvages's book he became deeply interested in this man, in whom he discovered the same capacity for systematic arrangement as in himself, and for thirty years these two men carried on an extensive correspondence, became close friends, and were mutually greatly influenced by each other, although they never became personally acquainted. In 1737 Linné commenced the correspondence by requesting Sauvages to send him his book which he had "sought in vain throughout Sweden, Lapland, Norway, Denmark, Germany, Holland and England," but which had made his mind teem with new thoughts since he had seen it at the house of a physician in Leyden. "My dull brain can only take in and comprehend that which can be conceived systematically. Any one with a bent for method will find truths in your work which will live till distant times."

In later letters he further vented his enthusiasm. "You are the only systematist among physicians, you alone have broken the ice and cleared the way. You alone have thrown open the road which the blind moles refuse to enter."

Hence, when Linné became professor of theoretical and practical medicine at Upsala, he based his lectures on Sauvages's system. After more than thirty years of work with his system Sauvages published his great main work in 1763 with the title, "Nosologia methodica sistens morborum classes, genera et species," and this work exerted a wide influence in the contemporary world. Sauvages enumerates in all 2,400 different kinds of diseases in his nosology. They are divided botanical wise into classes (10 in all), these latter again into orders (40 in all), the orders into genera (the first class alone contains 78 genera), and the genera again into species, their number, as said before, amounting to 2,400. In the preface he examines various

principles for classifying diseases. A division based upon the anatomical changes would not be feasible, and still less feasible any grouping depending upon the causes of diseases, because, as a rule, the causes are quite unknown. Hence he chooses a classification based upon symptoms as the only one possible and natural. But to his mind nearly every symptom must be conceived as a separate disease, as a consequence of which he was able to enumerate the before-mentioned enormous number of diseases.

Viewed with modern eyes Sauvages's system soon reveals the great shortcomings of this first attempt at a classification of morbid conditions as well as the great difficulties it involved both for the author and for the physician who was to use it. Thus no less than 18 kinds of angina are described, 19 of asthma, 20 of pleurodynia, 20 of phthisis, etc.

The grouping of the symptoms referable to the digestive organs, for instance, is specially confusing. Sauvages's seventh class comprises pains and is subdivided into five orders: The vague pains, the pains in the head, chest, abdomen and extremities. Among the 33 genera of the class we find dysphagia, cardialgia, and gastrodynia. There are 19 species of dysphagia, 6 of pyrosis, 13 of cardialgia and 20 different kinds of gastrodynia; further, under the sixth class (the debilities) occurs a genus called anorexia having 13 different species; under the third class (inflammations) we find 7 species of gastritis, and under the ninth class (the evacuating maladies) are found 12 species of nausea and 29 species of vomiting.

In reality his nosology consisted essentially in a description of symptoms, the various species of disease depending upon the various circumstances under which the symptoms appear. Such a description of symptoms was very far from Sydenham's idea of giving a proper description of the diseases. That, however, a great want had been met by Sauvages's nosology is testified by the appearance of a number of imitators

and successors in the following years. In 1763 Linné published a brief "Genera morborum" for the use of his students, and in the following years extensive nosologies modelled on Sauvages's system appeared in several countries. Thus a nosology by Vogel was published at Göttingen in 1764, also one by Cullen in Edinburgh in 1772, one by Macbride in Dublin in 1775, one by Sagar at Vienna in 1776, one by Vitel at Lyons in 1778, etc.

The only one of these nosologies which marked a real advance was that of Cullen. In this an extensive simplification of the system was attempted, the number of species was reduced and symptoms were grouped as far as possible into what we should now call complexes. For instance, he collected the numerous forms of anorexia, pyrosis, cardialgia, etc., under the head of dyspepsia. Nevertheless his system does not differ essentially from the others we have mentioned, his divisions, too, being based entirely on differences in symptoms.

This is also the case with the "Praxis medica systematice exposita, selectis diarii nosocomii Fridericiani illustrata" published by Bang at Copenhagen in 1789. Like Cullen's, this Danish nosology greatly simplifies matters by avoiding an undue elaboration of the individual symptoms. It was translated into German and enjoyed a wide popularity.

Although these nosologies pretended to carry out Sydenham's idea and programme by providing a description of diseases similar to that used for plants in botanical systems, yet the principles underlying all these attempts differed essentially from that recommended by Sydenham. When he described a disease he strove to characterize it by its specific course and the specific combination of symptoms exhibited. In this way he, in a manner, created new individual diseases. The nosologists of the eighteenth century, on the other hand, formed no new clinical pictures of diseases; they only catalogued and grouped the descriptions already known and left the problem of

nosography at much the same point as it was in Sydenham's time.

On the whole, what difference was there between a symptom and a disease? This problem had not even been proposed, a solution much less attempted. Linné had certainly given it as his view that "symptomata se habent ad morbum ut folia et fultera ad plantam," but no attempt was made to collect the symptoms into definite units.

However, at that time methodical nosologies, such as those mentioned, were of much use and were much needed. They stimulated a more accurate description and naming of symptoms and a more secure basis was thus obtained for all discussions and clinical studies. In reality, nosologies, once attempted, have since been indispensable. It is indeed necessary to have a systematic exposition of all known "diseases," but the modern systems certainly differ in every particular from those of the past.

The earlier nosologies all exhibited a certain resemblance to Linné's system for animals and plants. Just as Linné often employed quite superficial characters in arranging his classifications, so in these nosologies symptoms having a superficial resemblance, but differing widely in pathogenesis and significance, were grouped together. During the later centuries the attempt has been made to supersede these more or less artificial systems by a more natural nosological system, by one more in accord with the nature of the phenomena concerned.

Before this problem could be successful, however, a complete revolution of clinical medicine was required. Such a revolution took place in France simultaneously with and shortly after the great political revolution during which all sciences broke away more or less from tradition and a new intellectual life began.

## II

### THE PARIS SCHOOL. ANATOMIC DIAGNOSIS

The school of medicine which flourished at Paris in the beginning of the nineteenth century is generally called the pathologico-anatomical school, as it chiefly cultivated pathological anatomy, but in reality it was a clinical school in which anatomy was always held subservient to clinical ends. Indeed, we may say that with the development of this school, clinical medicine was first raised to the dignity of an actual science.

The movement was inaugurated by two men whose scientific views exerted an exceedingly stimulating effect upon their contemporaries even though their achievements in the domain of clinical medicine itself were not of special importance. These two men were Pinel and Bichat.

Pinel in so far stood halfway in the past, as his chief work is a nosology on the pattern of the many nosologies of the eighteenth century. But Pinel's "Nosologie philosophique," which was published in

1798, differed widely from the older descriptive collections of symptoms. He laid particular stress on the importance of disregarding the individual, continually varying symptoms of disease and considering each malady as an indivisible whole taking a course subject to fixed laws. Setting aside all incidental and individual phenomena, he sought to arrive at the typical picture of the disease. In accordance with this principle he established in his system various typical "essential" fevers, each characterized by a different course and characteristic symptoms. His great personal contribution to clinical medicine, however, consists in an attempt to classify acute inflammation on a kind of anatomical basis hitherto disregarded. While in earlier times diseases were grouped on an anatomical basis as diseases of the head, chest, abdomen, etc., and of the various organs, he now divided inflammations, "les phlegmasies," into the following five orders. The diseases of (1) the skin, (2) the

mucous membranes, (3) the serous membranes, (4) the connective tissue, (5) the muscles and joints. For the first time the attempt was made to demonstrate a connection and an agreement between all diseases of the mucous membranes, between those of the serous membranes, etc. He succeeded only very imperfectly in this purpose, but the idea proved fertile and was taken up by Bichat who brought it to greater perfection.

Xavier Bichat is usually, and with justice, mentioned as the man who set up the landmark between the two centuries in medicine. This young genius succeeded, in the few years of his life work, not only in completely revolutionizing anatomy and physiology by his "Anatomie générale," but also in bringing the new anatomy of the tissues to bear upon pathological anatomy and clinical medicine. He showed how each of the tissues described by him could be separately affected, and how the involvement of each tissue gives rise to different morbid symptoms. Previously, students of pathology, such as Morgagni, conceived of whole organs being diseased. Now the morbid changes in an organ were dissociated into diseases of the various tissues, each of which follows an entirely different course. The substance of the brain and its membranes may be separately affected, the various membranes of the eye have each their diseases, the bronchi, lungs and pleura likewise, and the diseases of the pericardium are different from those of the heart itself. The different tissues become diseased in the same manner quite independently of the organ to which they belong. Therefore in all inflammations there occur two groups of symptoms. One group is dependent upon the nature of the inflamed tissue, the other group is the result of disturbance in function of the organ concerned. For instance, certain symptoms, such as pain and fever, are always present and the duration and issue of the disease are much the same, whichever serous membrane is attacked, but if it is pleura that is involved, the patient will suffer from cough and respira-

tory difficulties; if it is the peritoneum, vomiting and obstipation are present; if the arachnoida, psychic symptoms, etc. He says in conclusion:

Il me semble que nous sommes à une époque, ou l'anatomie pathologique doit prendre un essor nouveau. Otez certains genres de fièvres et d'affections nerveuses, tout est presque alors en pathologie du ressort de cette science. La médecine fut longtemps repoussé du sein des sciences exactes, elle aura droit de leur être associée au moins pour le diagnostic des maladies, quand on aura partout uni à la rigoureuse observation, l'examen des altérations qu'éprouvent nos organes . . . qu'est l'observation, si on ignore la, ou siège le mal?

The whole of Bichat's pathological doctrine and principle of research was exceedingly stimulating and fruitful on account of its many new points of view and suggestive starting points, and his whole personality seems to have had the same stimulating effect. There is a fire and enthusiasm in his writings which cannot fail to arouse the reader. He spent the whole of his day in the dissecting room and wrote at night, and only in this way did he accomplish so much before he died in 1802, in his thirty-first year. His example no doubt greatly influenced the many gifted young physicians who set out on their scientific careers just at this period.

Bichat's ideas found the greatest number of followers at the clinical school at the Hôtel Dieu where Corvisart eagerly cultivated pathological anatomy in connection with clinical medicine, and where the post-mortem rooms were daily visited by the young students, Bayle and Laënnec.

Corvisart has laid down his principles of research in the introduction to the "Essai sur les maladies et les lésions organiques du coeur et des gros vaisseaux" which appeared in 1806.

With Corvisart the old era of systematic nosology comes to an end. After this, medical progress no longer depends merely on grouping the symptoms of disease. In order to increase existing knowledge con-



cerning the real nature of disease Corvisart laid stress upon the study of the pathological changes in the organs. Such studies had been prosecuted since the Renaissance and had resulted in Morgagni's famed book, "but," he says, "this fine work has served more to adorn the works of other physicians than to advance the art of recognizing the organic diseases. It should not be our object to search, out of a barren curiosity, for what the corpses may offer in the way of remarkable things, but to recognize the diseases by definite signs and constantly recurring symptoms." He therefore thought that the problem might be formulated in much the same way as Morgagni formulated it in the title of his book, but conversely. Morgagni had called his work, "*De sedibus et causis morborum per signa diagnostica investigatis et per anatomem confirmatis*," but added Corvisart, "it would require no less than a second Morgagni to produce such a work." The whole programme of the new school is contained in the above sentence, and there was really no lack of men who were Morgagni's equals. Corvisart himself made a beginning in his book already mentioned, which deals with the general symptomatology of heart diseases from this point of view. In this book he gives a classical description of cardiac dyspnea. He adopted the "*Inventum novum*" published by Auenbrügger in 1761, i.e., direct percussion, in order to demonstrate hypertrophy of the heart, and he sought to correct his diagnoses through succeeding post-mortem examinations. But all this was only the beginning.

The genius who really broke new ground was Laënnec, whose "*Traité de l'auscultation médiate*" belongs among the works which have marked an epoch in medicine and more particularly in internal clinical medicine.

It is now just one hundred years since this book saw the light, and from the time of its appearance the physician saw his task at the bedside change. The physician began now not only to observe, but to examine

the patient. Laënnec's work produced also a revolution in nosography, a revolution in the manner of describing and classing the morbid phenomena.

In his preface to the 2nd edition of his book (1826) Laënnec describes his method in the following words:

Le but que je me suis constamment proposé dans mes études et recherches a été la solution des trois problèmes suivants:

1. Distinguer sur le cadavre un cas pathologique, aux caractères physiques que présente l'altération des organes;
2. Le reconnaître sur le vivant, à des signes certains, et autant que possible physiques et indépendant des symptômes, c'est-à-dire du trouble variable des actions vitales qui l'accompagne;
3. Combattre la maladie par les moyens que l'expérience a montré être les plus efficaces: en un mot, j'ai tâché de mettre, sous le rapport du diagnostic, les lésions organiques internes sur la même ligne que les maladies chirurgicales.

As will be seen, his scientific programme coincides very nearly with that of his teacher Corvisart. He carried on pathologico-anatomical investigations, but constantly had in mind the utility of pathological anatomy for clinical medicine. "*C'est le flambeau de la nosologie*," he exclaims in 1812, greatly preferring the anatomical to the etiological or symptomatic method for distinguishing the various diseases, because he believed the anatomical characters to be the most constant and the easiest to recognize.

But when it came to recognizing in the living patients the anatomical changes found in the dead, there was still far to go. It was while considering this that he made the greatest advance when, in 1816, he conceived the idea of indirect auscultation, and this resulted in the invention of the stethoscope. By auscultation he was able to demonstrate the signs of morbid changes in the organs much more perfectly than he could by percussion alone, and the subjective symptoms, therefore, became of secondary importance.

After having described and classified all the phenomena observed by means of his stethoscope, he explained in his "*Traité de l'auscultation médiate*" the anatomical changes in the lungs corresponding to the stethoscopic phenomena, basing his explanations upon post-mortem findings. Before Laënnec's time a physician's examination of his patient consisted entirely in observing his appearance, feeling his pulse, looking at his tongue, examining the urine and the like. Now a really objective examination of certain organs could be made, at any rate, of the organs of the thorax. Objective criteria were henceforth demanded, and nosography had thus been placed on quite a new and firmer footing. Laënnec caused the germs provided by Pinel's and Bichat's anatomical ideas to spring into life in clinical medicine.

By comparing the conditions present in the patient with the course of the disease and the lesions found at post-mortem examinations Laënnec created a series of entirely new and classical pictures of disease. Thus he was the first to describe emphysema, acute and chronic edema of the lungs, bronchiectasis and gangrene of the lungs. He further described pneumothorax, and he distinguished pneumonia from the various kinds of bronchitis and from pleuritis. Before his time physicians had not been able to distinguish between these various affections, but merged them all under the term *peri-pneumonia* which had been inherited from the ancients. Having made these distinctions he was able to give a clinical and anatomical description of pneumonia which holds good to this day.

His greatest accomplishment, however, was his description of tuberculosis. It may be said that he was the first to establish the conception of tuberculosis as a morbid unity. Phthisis was, of course, known from the time of the ancients. The advanced stage with consumption, the expectoration of pus or blood, fever and diarrhea, had been known and described, but a number of other chronic lung diseases such as bronchitis,

empyema, gangrene of the lungs, etc., were confused with phthisis, and the early stages of the disease were little known. On purely symptomatic grounds various kinds of consumption had been demonstrated, as many as twenty varieties by Sauvages, fourteen by Pascal, etc. Anatomical tubercles were known since the time of Sylvius and Morton, and the conception had gradually gained ground that tubercles possessed a certain significance in the development of phthisis. Laënnec's contemporary, Bayle, got so far in simplification of the problem as to describe only six different kinds of phthisis. Laënnec was, however, the first to recognize that all these varieties were but stages in one disease, tuberculosis, and to show how to distinguish it from similar morbid states. Moreover, he showed that miliary tubercles, the larger yellow tubercles and the grey and yellow infiltration are all but different stages of the same process. Clinically he demonstrated that the process usually begins in the apex of the lung, and that the various anatomical changes may be demonstrated by means of stethoscopy, and finally he conceived and described tuberculosis of the lungs as a special disease differing from all other disease processes. He also recognized that tuberculosis in other organs and also scrofula were varieties of the same general disease.

Laënnec died in 1821, only forty-five years old, but a number of clinicians carried on the work in accordance with the programme laid down by Corvisart and by him. In all fields of internal clinical medicine there was a regeneration, and a nosography was created of hitherto unknown comprehensiveness and certitude. The most prominent names of this French school are G. L. Bayle, Andral, Louis, Bretonneau, A. L. Bayle, Bouillaud, Cruveilhier, Chomel, Alibert, Rayer, and Piorry. Their works and influence have so often been described that we may here content ourselves with a brief mention. With regard to them all, it holds good that it was the careful examination of the patients and the exact post-mortem

examinations which led to the advances in knowledge which they made and to their continual discovery of new diseases, or rather, to the continual establishment of new categories of disease, all of which had a pathologico-anatomical basis, and had clinical features characterizing them as well-marked individual diseases. As typical examples of their work may be mentioned Bretonneau's description of diphtheria, Louis' and Andral's studies on typhoid fever, A. L. Bayle's discovery of dementia paretica, Cruveilhier's discovery of chronic ulcer of the stomach, Bouillaud's establishment of mitral insufficiency and of rheumatic endocarditis.

Bacon's sentence *ars medica tota in observationibus* which Laënnec had employed as a motto, became a guide to the school.

The importance of hospital facilities for making these careful observations at the bedside and at the post-mortem tables caused hospital work suddenly to gain a significance which it had never had before. It was only in the wards of the hospitals that the careful examination of patients which was now required could take place; it was in the post-mortem rooms that Bichat and Laënnec had carried on their anatomical studies.

It was the results of such careful examinations of patients and just as careful post-mortem observations which were collected by Andral in 1823 in his classic "Clinique Médicale" which became the model for all works on clinical nosography during the following decades. The mode of exposition which he employed in this work was unusually lucid and methodical. In discussing each disease he first describes a series of cases ending fatally and describes the anatomical findings, then he describes a series of cases terminating in recovery, and finally he collects the anatomical as well as the clinical findings, and draws a picture of the disease in its entire course and in its different phases.

The same method was followed by Louis who gradually became the leader of the

Paris school. For eight years he gave up all private practice, spent four or five hours daily at the hospital and gave at least two hours to every post-mortem examination.

His first work on tuberculosis of the lungs was based on 167 clinical cases of pulmonary tuberculosis with autopsy examinations, his work on typhoid fever on 138 cases with dissections.<sup>1</sup> In the prefaces to his works in which, like most of the authors of this period, he diffusely discussed his principles of research, he emphasized how important it is for the physician to question his patients carefully, ascertaining what symptoms were present, and lacking these, being careful not to exert any suggestive influence on the patient while taking the history. The next step should consist in determining whether the organ to which the symptoms are referable, as indicated by the disturbances in function, shows lesions at the post-mortem examination that satisfactorily explain the symptoms. In this the greatest objectivity should be observed. And as a motto for his work on typhoid fever he cites Rousseau's familiar words from "Emile": "Je sais, que la vérité est dans les choses et non dans mon esprit qui les juge, et que moins je mets du mien dans les jugements que j'en porte plus je suis sûr d'approcher de la vérité."

As may be inferred from this quotation he was methodical rather than ingenious. He was almost pedantically exact and can hardly be called an innovator. He therefore gradually invested the school with a certain tendency to dryness, giving more and more weight to a numerical registration of morbid phenomena. He introduced the statistical, numerical method into clinical research, but in a certain degree this occurred at the cost of direct biological observation.

On this point he was in marked contrast with another of the most prominent members of the school, Bretonneau. This remarkable and gifted clinician spent his

<sup>1</sup> Garrison states that his research on phthisis was based upon 358 dissections and 1960 clinical cases.

life as a hospital physician at Tours. Very fertile in original ideas with which he orally enriched his pupils, he seems to have been indisposed to commit them to paper. He has in fact left behind him only one larger work, his book on diphtheria, which appeared in 1826. It may be said that the scientific history of diphtheria began with Bretonneau, since he was the first to write diphtherial angina and croup into an etiological and clinical entity. His second great subject of investigation was typhoid fever in which he demonstrated the intestinal lesions, and he therefore named this disease "Dothiéntérie." In 1826 Bretonneau's disciple, Trousseau, gave an exposition of the latter's ideas and observations concerning dothiéntérie, and Bretonneau's own great work on this subject seemed to be nearing its completion when Louis and Andral in 1829 brought forward their works on typhoid fever and thus rendered Bretonneau's book unnecessary, or at any rate, deprived him of the desire of finishing it.

Our own special interest in Bretonneau is excited chiefly by his general points of view concerning specific inflammations and specific diseases. According to Bretonneau it is the specificity of the inflammation much more than its intensity or seat in the various tissues which influences the morbid phenomena: "C'est à la spécificité de l'inflammation, que se rapportent la durée, la gravité et le danger de la plupart des pyraxies." He states that all tissues seem liable to be affected by various kinds of inflammations, but the inflammations of the skin offer the greatest variety; the mucous membranes, however, may also be the seat of different kinds of inflammation.

As an example of a specific inflammation he refers to the membranaceous diphtheretic inflammation of the throat; in typhoid fever there occurs another variety in which a kind of pustulous exanthema occurs in the mucous membranes of the intestine, just as in smallpox a special type of exanthema is present on the skin. It is upon the

demonstration of the specific character of a disease that diagnosis, prognosis and treatment depend. Since Bretonneau, the specificity of diseases has in fact always been implied; this is shown by the different names given to the cutaneous inflammations, "even the physicians who refuse to accept it because it is opposed to their theories, defer to it in practice."

Of special interest is the manner in which Bretonneau sought to give experimental support to his theory of specificity. By application of the extract of cantharides he succeeded in producing a membranous inflammation in the mouth and throat or in the conjunctiva of dogs. The appearance of the lesion was exactly similar to that of real diphtheria, but the course of the disease was quite different, the process was localized, extremely benign, and was not accompanied by fever or other general manifestations. "Ce quelque chose de spécial, ce 'quid divinum,' qui ne peut être saisi, et qui, de l'aveu d'Hippocrate, échappe à toute explication" was wanting. Like Sydenham he stops at this "quid divinum," this mysterious factor which determines the course of a disease, its specificity.

Bretonneau had not the same influence on his contemporaries as Louis, and, under the leadership of the latter, purely anatomical diagnosis became more and more dominant, but it will be easily seen that the points of view and attitude of mind revealed by Bretonneau in his writings indicate that in him a further and considerable development of Laënnec's ideas concerning nosography, had taken place. The French physicians of this period were constantly engaged in isolating and describing new types of disease, and this aided greatly in maintaining and developing Laënnec's ideas.

It must not, however, be understood that there were no difficulties to be overcome. On the contrary, the new school met with keen opposition, and Laënnec and Louis, especially, found a bitter adversary in the somewhat fanciful Broussais, who

was, however, a gifted agitator. Their controversies played a great part at Paris in the first part of the century and finally ended in the defeat of Broussais. Nevertheless, it is not unimportant to draw attention to some of the views which he advocated, because they represent certain principles in clinical research which have retained a certain vitality, especially in Germany.

Broussais called his doctrine "physiological medicine" because he wished to attach more weight to the functional disorders of the diseased organs than to their anatomical alterations. He was the disciple of Bichat in so far as he sought to locate the diseases in the separate organs, but he opposed the tendency of the modern school to draw up definite clinical pictures of disease ascribing to each disease a typical course and sufficiently well-marked characteristics as to justify its designation as a distinct entity.

He maintained that symptoms are subject to no law, but combine in ever varying groups, no two cases being ever found alike. It was, therefore, necessary to investigate closely the physiological conditions present in each separate case. It was unjustifiable to regard tuberculosis as a morbid entity. Viewed anatomically, tuberculosis was only a chronic inflammation of the lungs, a chronic pneumonia, without particular characters. Inflammation, wherever occurring, was due to a diminished or increased degree of that "irritation" which was, to him, the vital principle. According to Broussais, the practice of the pathologico-anatomical school of setting up diseases was in fact only the continuation of the infelicitous idea of the older nosologists of conceiving of diseases as special beings like plants. This was "ontology," and it was chiefly this and the accompanying "fatalistic" conception of the course of the diseases which he persecuted with all his hate and scorn.

Those groups of symptoms which are given out as diseases are metaphysical abstractions which by no means represent a constant un-

changeable morbid condition, and which we cannot be certain of finding in nature. They are factitious entities (*entités factices*), and all those who study medicine according to this method are *ontologists*.

To regard the succession of symptoms observed as the necessary and unchangeable course of a disease, means the creation of a factitious entity, means the making of ontology.

Broussais in a way hits the very center of the mark in his criticism of the aims of the Paris school, since in all the coryphés of the school, from Pinel with his essential fevers, to Laënnec with tuberculosis and Bretonneau with the specific maladies of the mucous membranes, we meet with this tendency to set up "factitious entities," typical diseases, and these aims are diametrically opposed to Broussais' physiological medicine which fanatically opposes everything specific. It is the same antagonism which we found between the men of the chemiatrial school on the one hand and Sydenham and Locke on the other, and in one shape or another we shall meet it again during the whole of the nineteenth century.

Broussais was of course right in his argument that all entities of disease are abstract concepts created by the human brain, but he did not see that the same holds true of all species, even of botanical and zoological species, though Broussais drew a contrast between these and what he called the "factitious" entities in medicine. Even after the zoological species have been deprived of their Platonic divineness, they are still as necessary as before in biology, and an analogous situation exists in respect to diseases in medicine. It is only when we forget that species is a concept derived from individual observations, and assign to it an absolute value, that we can be dubbed ontologists.

The habit of regarding diseases as entities, as a kind of beings, forced itself on the clinicians with irresistible power from Sydenham to Bretonneau. This gave support to the criticism that there was a complete failure to recognize the essential principle

in the delimitation of a given pathological species from other pathological conditions.

Although anatomical changes were considered of great importance by the men of Laënnec's school, these men were too much clinicians to rely on them alone in classifying diseases. They understood that there existed laws relating to the combination and course of symptoms which could not be neglected. As previously mentioned, suggestions appeared in the works of Bretonneau as to methods for solving the problem, and his suggestions were extremely fruitful in later times.

The clinical scientific movement spread quickly from Paris to other countries. From all parts of the world young physicians flocked to Paris in order to learn the art of stethoscopy as well as anatomical diagnosis, and centers of learning arose in which the new teaching was not only applied in the practice of diagnosis, but also in which the principles of research actuating the Paris school were employed in further independent investigations along similar lines.

The first place in which such a clinical school arose was Dublin. About 1820 Ireland was beginning to recover from a series of violent and disastrous social and political shocks, and about this time the physicians of Dublin found a leader in Robert Graves. After pursuing his studies on the continent for several years, Graves had been appointed chief physician to the small Meath hospital, and here also shortly afterwards William Stokes obtained a post. These two eminent clinicians form the center of a group of physicians whose names are still familiar on account of the clinical discoveries with which they were associated. Among these physicians were Cheyne, Adams, Corrigan, and others. These clinicians are now chiefly remembered as having described the "new" diseases or complexes of symptoms with which their names are associated, as, for example, Graves' disease, Adams-Stokes' disease, Cheyne-Stokes' respiration, Corrigan's disease, etc.

Almost simultaneously new clinical schools

appeared in London, that at St. George's Hospital, where Hope worked, and the school of Guy's Hospital being of special importance. At the latter school Thomas Addison and Richard Bright were the leaders and they became the most noted of the "great men of Guy's," among whom was also Hodgkin. In Bright's "Reports of Medical Cases," published in 1827, he showed for the first time the connection between anatomical changes in the kidneys and dropsy, and albuminuria, and thus created the clinical picture of that chronic inflammation of the kidneys which still bears his name, and the nosography of which he further elaborated in his later works. The names of Addison and Hodgkin also became attached to definite diseases, and the same is true of the names of other physicians who were then practicing in London and Edinburgh, such as Parkinson, Abercrombie and others.

All these English clinicians worked according to the same principles as those that guided the Paris school, and their chief contributions were to nosography. It was the combination of anatomical and clinical investigation which led to the results which they obtained, and they held the opinion, perhaps even more strongly than the French physicians, that pathological anatomy was merely an aid to clinical medicine and must always be subordinated to the latter. We find this clearly expressed by Graves in his famous clinical lectures:

In order justly to estimate the importance of morbid anatomy, we should recollect that the first alteration in the picture of a part is not the cause but the consequence of disease. . . . Thus the physical alterations which attend external inflammation, the tumefaction, the heat, the redness are not the causes but the consequences of disease. But in thus reducing them to the rank of symptoms, do we diminish their importance? Certainly not. For being immediately connected, as effects, *with* the primary cause, they prove the most useful of all symptoms, in enabling us to ascertain the seat and progress of diseased action.

Graves, of course, fully acknowledged the importance of Laënnec's anatomical diagnosis, but he held the conception of "disease" as of primary significance and was therefore in harmony with Sydenham's and Bretonneau's doctrine of the specificity of disease.

Thus the French and English clinicians became co-workers, starting with very similar points of view, and as a result, an entirely new clinical medicine developed during the first part of the nineteenth century. A series of new diseases was described and these were made easy to recognize by the discovery of "pathognomonic" symptoms and characteristic objective signs. The course and whole characteristic picture of these diseases were definitely outlined. The violence with which clinical medicine was completely revolutionized in the course of a few decades by these important and striking discoveries will always remain one of the wonders of medical history.

The stir of this scientific movement spread quickly to other countries. In America the brilliant pupil of Louis, W. W. Gerhard, besides other accomplishments, described tubercular meningitis in children, and he was also the first clearly to differentiate typhus and typhoid fevers. In Denmark, Seligman Trier, head physician at Frederiks Hospital in Copenhagen, introduced stethoscopy as a diagnostic method into Scandinavia, and in 1830 published a book of "Directions in the Art of Stethoscopy." Scientific work in this field was not continued in Scandinavia, however, and only later, through the efforts of C. E. Fenger, who demonstrated "the echo in the human lungs," were the French ideas, more particularly Louis' statistical method, adopted in this country.

The first place in the Germanic world in which to any extent Corvisart's and Laënnec's and other exact methods of physical examination were adopted, was Vienna. Here Auenbrügger had formerly developed the method of percussion, and here now the clinician, Skoda, and the pathologist, Roki-

tansky, became the leaders of the "new school of Vienna."

They followed largely along the lines laid down by the Paris school. Rokitansky, drawing on an immense body of material, most industriously and systematically continued the study of the pathologico-anatomical changes in the organs which had been undertaken by the French pathological anatomists, while Skoda extended and developed Laënnec's stethoscopy. By intimate cooperation these two scientists greatly advanced the art of anatomical diagnosis, and the Allgemeines Krankenhaus of Vienna was long a gathering-place for young physicians.

There was, however, an essential difference between the French and Vienna clinical schools. In Skoda's chief work on percussion and auscultation which appeared in 1839, there is much criticism of Laënnec's views, particularly of his views concerning the significance of certain signs. Laënnec had attempted to characterize the various diseases by definite stethoscopic findings, and had, for instance, pronounced crepitation "pathognomonic" of pneumonia. Skoda was opposed to this view. Skoda attempted to explain the phenomena observed by percussion and auscultation by purely physical laws and he employed the methods of auscultation and percussion to demonstrate anatomical changes in the lungs, but he would hear of no definite diseases or pathognomonic signs of such. In these views he accorded with Rokitansky, and like him, placed anatomical alterations first in the classification of morbid processes, and held that the task of clinical medicine was confined to demonstrating these anatomical changes in patients. He thus entirely subordinated clinical medicine to pathological anatomy and made anatomical diagnosis in the literal sense of the word the end and object of his efforts. As a matter of fact, Laënnec, too, had seen quite clearly that only certain purely physical changes in the lungs could be demonstrated by auscultation, but he utilized the findings

as part of the morbid picture and described, for instance, a typical stethoscopic finding in pneumonia as a characteristic feature of that disease. Skoda raised strong objections to this, and he seems to have lost the power of seeing precisely what was clinically typical in proportion as he became absorbed in the study of the physical laws underlying the percussive and auscultatory phenomena. Indeed, he quite deferred to Rokitsky who, in his textbook of 1846, drew the oft-cited conclusion "that pathological anatomy should be the base not only of the knowledge of physicians but also of their practice, as it contains all there is in medicine of positive knowledge and the foundation of it!" With such views scientists had wandered far from the nosography of the English and French, and landed in anatomical diagnosis of the purest and dryest sort. Is it to be wondered that it

brought with it a complete therapeutic nihilism in internal medicine?

At Berlin it was Schönlein who had the merit of introducing Laënnec's diagnostic methods. Through his vigorous personality he greatly influenced the younger generation of physicians, though as a scientific worker he was not very productive. In his earlier years he was greatly influenced by German "Naturphilosophie," and by the earlier clinicians of the eighteenth century, and he also became engrossed in devising nosological systems. The systems originated by him and his disciples (Eisenmann, Juchs and others) had a strong philosophical character and were of no lasting value. Only when he came to La Charité at Berlin in 1839 and at the same time adopted the French methods of physical diagnosis did he grow to be the highly valued teacher of the rising generation in the medical world.

### III

#### GERMAN PHYSIOLOGICAL MEDICINE

While the new school of Vienna was developing clinical medicine on pathologico-anatomical lines, another tendency began to assert itself in Germany. This was manifested by a disregard of the nosography of the Paris school, accompanied by an effort to reconstruct clinical medicine on physiological lines.

This movement had indeed already been initiated in France by the experimental physiologist, Magendie. In his lectures of 1836 on the "Phénomènes physiques de la vie," he discussed the problem both from the physiological and the pathological standpoint and published his own views concerning the best methods to be employed in increasing knowledge concerning morbid phenomena. He admitted no essential difference between physiology and pathology; they appeared to him as one science; pathological phenomena are only modified physiological phenomena. "La médecine n'est que la physiologie de l'homme malade." Both sciences should, therefore, be

studied by the same exact methods. Through pathological anatomy alone complete knowledge concerning disease could never be acquired. The changes found in the organs after death cannot explain all the phenomena observed before death, and the local lesion is, as a rule, only the outcome of an action on the economy of the whole system.

In Germany it was chiefly the physiologist, Joh. Müller, who advocated similar views, and his disciples carried on the movement with vigor. As a physiologist he continued the work begun by Magendie, but his influence extended far beyond physiology on account of the consistency with which he demanded exactness and conciseness, not only in physiology, but also in pathology, and his importance for German medical science may best be conveyed by mentioning some of the men who counted themselves his disciples, such as Schwann, Remak, Wunderlich, Henle, Traube, Virchow, Helmholtz, Kölliker, du Bois-Reymond, Brücke and many others.



In the beginning of the forties some of these enthusiastic young physicians set high the banner of science in medicine. Almost simultaneously three periodicals were started as organs for the new school. In 1842 Wunderlich and Roser began the publication of the *Archiv für physiologische Heilkunde* at Würzburg and in 1847 Henle at Zürich established the *Zeitschrift für rationelle Medizin*. At Berlin Ludwig Traube in 1846 began the publication of his *Beiträge zur experimentellen Pathologie und Physiologie*, which, in its first numbers, contained his own well-known investigations on the consequences of cutting the vagus nerves and the pathogenesis of the resulting pneumonias (*Schluckpneumonien*), and Virchow's still more famous work on embolism and thrombosis. These *Beiträge* only appeared for one year, however, as they were superseded by the famous *Archiv für pathologische Anatomie und pathologische Physiologie und für klinische Medizin* which was founded by Virchow and Reinhardt in 1847.

Even if these three journals differed somewhat in character they all sounded the same note, demanding a really scientific treatment of the problems in medicine, based on experience and experiment. The description of phenomena was no longer sufficient; an attempt should be made to understand their interrelation, their genesis and development, and the principle first enunciated by Magendie, that pathology is the physiology of the diseased individual, was constantly emphasized.

The scientific life which now unfolded itself was all the more effective because prior to this there had been an absolutely barren period for medicine in Germany. German science was greatly under the influence of "Naturphilosophie" at the beginning of the nineteenth century. Medical science was dominated by Schelling's philosophy and a priori deductions and superficial analogies replaced scientific observation.

From Jena, the home of romanticism, had issued the so-called "school of natural

history" in medicine, as it was named by K. W. Stark. He has related, more or less vaguely, certain notions held by this school, such as that diseases should be regarded as parasites, not as produced by parasites, but as being themselves a kind of parasite existing on the sound organism in which they develop. The diseased organ is to be considered not only as a degenerated part of the body, but is itself a special organism with its own laws of development, a kind of parasite. The difference between the cause of the disease and the disease itself was overlooked, and thus an "ontology" of a much more stalwart character than had hitherto been known was established.

By some of the disciples of this school these notions were carried to the verge of the grotesque. Thus Karl R. Hoffmann, influenced by certain ideas in Schelling's "Naturphilosophie," described in his "ideal pathology" the various morbid conditions as a kind of retrogression to lower grades of evolution. Rachitis signified a return to the mollusca because the bones became soft. He thought individuals suffering from certain digestive disorders had descended to the rank of cattle. That the tongue got white, the urine sedimented and eructation and vomiting occurred, all indicated a tendency to rumination. A finer example of "false analogies" can hardly be adduced.

In the face of such unscientific views, the new movement had the effect of a revolution, and the two "Swabian reformers," Wunderlich and Roser, who were the first in the arena, created an enormous sensation in the medical world.

The title which Wunderlich had given to his *Archiv* led to the name "physiological medicine" soon becoming accepted as the name of the school. In his "Geschichte der Medizin," published in 1869, Wunderlich says that this name was chosen "on the one hand to express the fact that pathology, in contrast to all ontological and personifying conceptions, is only the physiology of diseased man, on the other hand, to call to mind the fact that pathology requires the

same means and methods to establish facts, and the same logic in argumentation, as were already recognized in the science of healthy man." We thus see that the selection of the name "physiological medicine" had a double significance. From the very beginning there existed the intention to replace anatomical research entirely by physiological investigation, to pass from the purely descriptive method to a consideration of the relations existing between various morbid phenomena, and to establish a pathological physiology such as had been suggested by Hunter, Dupuytren and Magendie. But in addition there was also the firm resolve to abandon the "ontology" of earlier times, above all as it displayed itself in the German school of natural history with its almost personifying conception of diseases. This attitude, however, involved a strongly antagonistic position towards the whole doctrine of the French pathologico-anatomical school which Broussais, as we have seen, had declared to be a dangerous ontology. On the whole Broussais and Magendie were cultivated and commended at the cost of Louis and his fellows, and Bretonneau's views were entirely disregarded.

On reading the introductory articles containing the programmes of the above-mentioned periodicals we receive a vivid impression of the excessive enthusiasm with which German medicine, after long languishment, woke to the vigorous activity which was soon to give it a leading position in the world, a leadership to be retained under the guidance of Virchow during the remainder of the century. But from these same articles we also receive the impression that there prevailed extremely narrow and limited views concerning clinical medicine, and we can also detect the germs of these opinions which were soon to lead German medicine astray on certain important points.

As already said, the members of this school from the very beginning resisted every endeavor to establish definite clinical pictures, or to describe individual diseases,

and all mention of specific characters was opposed and dubbed ontology, or characterized as a relic of an unscientific and antiquated age.

Some passages from Wunderlich's introductory article to the first number of *Archiv für physiologische Heilkunde* are of interest in this connection:

Such a view which takes abstract concepts for things, implying their actual existence and at once treating them as entities, is called ontology. Frequently as has this logical blunder crept into medicine and flourished there, after Broussais' time it will hardly be heard of again.

To the most widespread and the most dangerous consequences of ontology belongs the practice of setting up species of diseases which have been grouped in classes in the same way as plants. By raising them to the dignity of species these ontological personifications received, as it were, the sanction of natural history.

The phenomenologist certainly uses such clinical pictures as dysentery, cholera, scrofula, but he only assigns importance to them as a practical make-shift borrowed from the popular, unscientific view of things. He knows that such a group is no definite physiological whole, no organic entity. He knows that it is an impossibility to decide, or is at any rate quite an arbitrary decision, where the limit is to be drawn between dysentery and enteric diarrhea, between rheumatism and arthritis. But to the ontologist the assumed disease is a dogma; the group once collected, it becomes a concept, an entity. Thus these model pictures of diseases arise, which contain no essential mark, no mark which may ever be missed—this compendium of diseases to which we only exceptionally, or by using compulsion, find parallels in nature.

Here we see how entirely he dissociates himself from the French clinical school, and we find similar pronouncements by the other representatives of German physiological and rational medicine in the forties.

For instance, we find quite a similar line of thought expressed by Traube in his *Beiträge* and by Virchow in the articles sketching his programme in the first numbers of his *Archiv*. In the preface to his

periodical Traube states that there was only one means of escaping from the uncertainty and confusion which prevailed in pathology, only "experimentation combined with observation can make pathology what it should be, an exact science."

Virchow's views of clinical research are found expressed in the prospectus contained in the first volume of his *Archiv* (1847):

The ideal we shall strive to realize, as far as it is in our power, is, that practical medicine shall become applied theoretical medicine, and theoretical medicine shall become pathological physiology. Pathological anatomy and clinical medicine, the justness and independence of which we fully recognize, are essential to us as sources of new questions, the answering of which will fall to pathological physiology.

In a following article "Über die Standpunkte in der wissenschaftlichen Medizin" he continues:

Pathological physiology takes its questions partly from pathological anatomy, partly from practical medicine; it creates its answers partly from observations at the bedside, and thus it is a part of clinical medicine, and partly from experiments on animals. The experiment is the ultimate and highest resort in pathological physiology.

Like Wunderlich he repudiated all ontology, all talk of specific diseases and associated specific therapy. In the next number of the *Archiv* he continues:

Indeed therapy knows only too well the giant whose far-reaching shadow has withered so many fresh shoots in all the provinces of medicine and made so many pleasant flowers fade before their time. It is *ontology* which has inflicted wounds of no less depth in pathological microscopy than in therapy and diagnosis. Consider only how much toil it has cost and still costs to conquer ontology in the so-called physical examination of the thoracic organs, and keep fresh in the consciousness of physicians the fact that we are able to recognize only the consolidation of the parenchyma of the lung and the contents of the bronchi but not immediately the pneumonia or bronchial catarrh; consider further, how nowadays ontology is again attempt-

ing to creep into therapy in all sorts of disguises as we see it most markedly in the so-called specific methods of cure, and we shall not wonder that ontology has rapidly been able to gain such currency within so young a science as pathological microscopy as has even threatened its existence as a science. The cancer cells are regarded as pathognomonic for cancer, the pus cells as characteristic for pus.

With ontology the entire pathological teleology will disappear; cancer will no longer be a parasite of independent vitality maintaining its existence at the expense of another life, and against which the organism wages battle in order to destroy it. Suppuration will no longer be a curative measure of the organism, the pus bodies will no longer be gendarmes ordered by the state to escort this or that foreign intruder, who has come in without a passport, across the frontier; the fibrous tissue no longer will form the prison walls within which to confine such a foreigner.

In a well-known treatise written in 1849, "Die Einheitsbestrebungen in der wissenschaftlichen Medizin," Virchow further emphasizes his view that "the destruction of the ontological conception of disease is also a destruction of ontological therapy, of the school of the *specifics*. The subjects of therapy are not diseases but conditions; we are everywhere only concerned with changes in the conditions of life. Disease is nothing but life under altered conditions."

We see how the custom of regarding pathology as a kind of modified physiology dominated the whole German school. The great advance made by this school lies in the fact that it set as the goal of all medical science the attaining of an understanding of morbid processes, of the relations between the pathological phenomena.

"Das Kennen ist wichtig, aber das Begreifen ist das Wichtigere und Höhere." With these words Wunderlich characterizes the aims of physiological medicine, and thus contrasts them with the purposes of the French school of medicine which confined its attention chiefly to the description of morbid phenomena, both the clinical phenomena and the pathologico-anatomical

lesions. As we have seen, he and his colleagues opposed the efforts of the clinicians to establish clinical pictures of the various diseases, each disease following a characteristic course. On the other hand, such conceptions formed the foundation of the flourishing French and English clinical medicine of the time. This attitude of antagonism which was adopted by the Germans was not without consequences for the future of German internal medicine.

If we look at the whole evolution of German medicine in this fruitful period we find that it was primarily in the theoretical branches of medicine that the development took place. Experimental physiology received an enormous impulse and one physiological institute after another sprang up in the various universities. Under Virchow and his many disciples pathological anatomy developed into a powerful and quite independent science. As great an advance in general medical views as Bichat had produced by his general anatomy, was now affected by Virchow through his cellular pathology and through the thoroughgoing microscopical revision of the whole of pathological anatomy which now took place. It is entirely due to the circumstance that these great branches of science, physiology and pathological anatomy, now became emancipated from clinical medicine that it became possible to subject them to the thorough and accurate revision which was needed. Germany thus became a pioneer to other countries where such an emancipation was tardy in making its appearance or has to this day been only imperfectly accomplished.

What, now, was the position of clinical research during this powerful movement, what part was assigned to it, and how was it furthered?

In order to answer this question it will be natural to consider the activities of the two great clinicians who were the leading men at Berlin during this period, namely, Traube and Frerichs.

As already noted, Traube started on his

scientific career as an experimentalist, and after he had obtained charge of a clinical department at the Charité Hospital in Berlin and was carrying on his work as a teacher of "clinical propaedeutics," he retained his interest in experimentation. He may be said to have founded experimental pathology in Germany and his best known clinical work was performed in intimate connection with experimental studies. For instance, in 1856 he developed his doctrine of variation in blood-pressure, and more especially of hypertonia as the cause of the cardiac hypertrophy which Bright had observed to be present in chronic nephritis. He based his conclusion chiefly upon experiments made by Ludwig and upon his own experiments on animals. In continuation of these investigations he described interstitial nephritis.

Perhaps, of still greater importance to clinical medicine were his investigations concerning clinical thermometry. In this he fulfilled another of the demands of physiology, that of exact measurement of the morbid phenomena. But it was not until Wunderlich by the advice of Traube had taken up this problem that the endeavor to introduce thermometry at the bedside became successful. To him, above all others, we owe it that the daily measurement of the temperature gradually became a necessary detail in the observation of patients. We are also chiefly indebted to Wunderlich for the demonstration of the typical temperature curves of the various diseases. It is interesting to see how through the recognition of these typical curves and their significance in diagnosis he was gradually led more and more to acknowledge that the various diseases ran typical courses, and he was, therefore, forced to adopt a point of view not dissimilar from that held by the French clinicians with their despised ontology. Indeed, we have just heard from his disciple, Strümpell, that Wunderlich, on his rounds, often looked more intently at the temperature charts than he did at the patients.

Traube's other clinical studies consisted chiefly in contributions to anatomical local diagnosis, especially of lung disease, and clinical medicine has, as we know, retained his name in the designation "Traube's space" for that part of the left pleura which lies below the lung. His system of diagnosis was based chiefly on pathological anatomy and especially on Virchow's teaching.

Frerichs, who became the leader of clinical medicine at the Charité in 1859, began his scientific career as a chemist and physiologist under Liebig. Nevertheless, in his first important clinical work, that on Bright's disease, published in 1851, he laid stress on the importance of independent clinical observations, and sought, on the whole, more than Traube, to emphasize their value. In this work on nephritis he was the first accurately to describe uremia, and he attempted to discover its pathogenesis by means of experiments on animals, for he, too, recognized the great value of experimentation, though he looked upon it largely as an aid to clinical medicine. He desired that the latter should be founded on thorough chemical and anatomical knowledge, together with bedside observation.

This attitude of mind is revealed in his great work on the diseases of the liver, in which he described acute yellow atrophy. He made other contributions to medicine, mainly of a physiologico-chemical nature, such as his studies on leucin and tyrosin. Despite his marked chemico-physiological tendencies and interests, he, too, largely subordinated his clinical studies to pathological anatomy. It was above all Virchow's pathology which dominated clinical medicine everywhere at this time, and this was but a continuation of Rokitsansky's pathological anatomy and just as dogmatic as the latter in regard to clinical problems.

Frerichs to a certain degree saw the mistake of letting anatomy predominate, but made only faint resistance, although he was annoyed by the purely personal antagonism between himself on the one side and Virchow and Traube on the other. This divergence

was so great that Traube's and Frerichs' numerous and eminent disciples formed two separate camps which were far removed from each other, though they were equally scientific in their tendencies.

The strength of the new German internal medicine lay in its close connection with physiology and the new pathological anatomy. Before the English and the French, the Germans knew how to turn to account the immense advances which were being made in anatomy and histology, in physiology and physiological chemistry. Every clinician made it a point of honor to establish a laboratory in conjunction with his clinic, and from these laboratories issued a series of valuable investigations, but their themes were chemical, pathologico-anatomical and experimentally pathologic. Clinical observation, properly speaking, fared but badly. Nosology was required to fit into the framework supplied by Virchow's teaching and in certain main points this school stood for a decided retrogression in clinical medicine.

This was primarily the case with the study of tuberculosis. Virchow's investigation on tuberculosis, the chief innovation of which was his demonstration of the microscopical structure of the tubercle, led him to draw a sharp distinction between tubercles proper and what he called the caseous metamorphosis. All the processes, which Laënnec, drawing on his clinical observations, had combined into one single morbid unity, tuberculosis, were now divided into two main groups, all the tubercular phenomena being regarded as simple inflammatory processes followed by caseous metamorphosis. Likewise a definite distinction was again made between scrofula and tuberculosis, and tuberculosis occurring in the various organs was not regarded as the result of a general disease, but as local changes with a common tendency to caseation. This dualistic conception of tuberculosis was soon adopted by the German clinicians.

After Virchow had explicitly expounded this doctrine in his lectures on tumors

(1862-65), Niemeyer became the special spokesman of the clinicians in a course of clinical lectures "Über Lungenschwindsucht" delivered at Tübingen in 1866. In sharp antagonism to Laënnec's view of tuberculosis as a primary, specific disease, he drew a distinction between the chronic, caseous and destructive phthisis, and the early, frankly tubercular condition. "Everything, which since Laënnec has been designated as infiltrating tuberculosis of the lung, is the product of chronic, especially catarrhal, pneumonia." Phthisis may begin as a croupous pneumonia, more frequently a chronic catarrhal pneumonia. Caseous necrosis, cavern formation, and new formation of connective tissue, the ordinary picture of chronic phthisis, may then develop. Tubercles may then supervene as a secondary complication in the advanced stages of phthisis. Famed is Niemeyer's sentence on this subject: "The greatest evil which can happen to a consumptive is that he should become tuberculous." In regard to intestinal tuberculosis a similar process was thought to occur. *Darmschwindsucht* was regarded as a tubercular eruption on the serosa, often occurring as a secondary complication of ulcerous processes in the intestine.

Turning the things topsy-turvy in this way, of course, produced great confusion in this important chapter of internal medicine and led to the habit of conceiving that the initial stages of phthisis in all instances were nonspecific apex pneumonias, catarrhal pneumonias, apex catarrhs or various forms of bronchitis and peribronchitis. The clinician was burdened with all these concepts when facing a case of incipient phthisis, and the general picture of tuberculosis which had been so clearly drawn up by Laënnec was thus again lost sight of. Moreover, these German clinical doctrines were not appreciably shaken by the fact that in 1865, Villemin demonstrated the inoculability of tuberculosis by experiment, and this inoculability was demonstrated for the infiltrating caseous form, as well as for

miliary tubercles. At this time the connection between medical science in France and Germany was already beginning to be obstructed by the increasing political tension.

In its fear of, or aversion to, specificity and everything savouring of ontology, German medicine strayed back into confusion in other domains than that of tuberculosis. For instance, as regards diphtheria, Virchow maintained the conception of dualism, rejecting the French teaching which regarded diphtheria and croup as mutually interdependent, forming one specific disease. The confusion on this point really dates back to Rokitansky, who in his "Pathological Anatomy" (1844) invested the purely clinical concept of croup with an anatomical meaning, and included under the term "croupous inflammations" all diseases of the mucous membrane in which membranes were formed, whether the site of the lesion was in the throat, the larynx, the bronchi, uterus, the stomach or the intestine. Among these diseases he included pneumonia which he called croupous pneumonia on account of the fibrinous exudate in the alveoli. Somewhat later (1847) Virchow distinguished between croupous and pseudomembranous inflammation, and in consequence drew a sharp line of distinction between croup and pharyngeal diphtheria. As a result of these purely anatomical and extreme views, Bretonneau's doctrine of diphtheria gained no entrance into Germany. All doctrines of specific diseases were, as we have seen, denounced, and it did not enter the minds of German clinicians that there could be any connection between croup and pharyngeal diphtheria.

In an exactly similar manner Hebra identified variola with varicella in his exposition of the diseases of the skin in Virchow's "Handbuch der speziellen Pathologie und Therapie," though as early as 1766 varicella had been described by Heberden as a specific disease. Anatomically, the two conditions were alike, and they must therefore after Hebra be regarded as varieties of one and the same disease, and as a necessary corol-

lary a case of varicella might give rise to real smallpox.

These great and confusing errors of German medicine were only rendered possible through a failure to comprehend and respect the clinical, nosographical method. This attitude of mind, which characterizes Virchow and his pupils, was in part an inheritance from the new school of Vienna. Virchow maintained that the function of clinical medicine was to raise questions, pathological physiology to answer them, and the whole school followed his lead.

But not only pathological anatomy, but also physiology and experimental pathology took their share in discouraging clinical medicine, which during this period lost that veneration for its own problems which is so necessary, and it then became in a great measure reduced to a kind of accessory science subordinate to pathology and physiology.

It is interesting to read the judgment pronounced on clinical medicine by one of the most prominent of German clinicians, Naunyn, in a retrospective survey written in 1908, "Die Berliner Schule vor 50 Jahr." He was himself one of Frerichs' disciples and is universally known for his epoch-making studies on diabetes through which his name and that of his school have become inseparably associated with our knowledge concerning acidosis and pancreatic diabetes.

He writes as follows:

Not until very recently did German internal medicine take a share in the development of nosography, semiology and diagnostics, and that this occurred so late was due to the physiological school.

It was the physiologist, Joh. Müller, who ended the domination of "Naturphilosophie" in his textbook on physiology published in the thirties. In internal medicine, especially, the influence of this philosophy was still very great and just here Müller's work as a deliverer was especially felt. For this reason modern clinical medicine has flattered itself with the name "physiological." But it happened that the enthusiastic advocates of the new movement,

in their exaggerated zeal sought to find in physiology not only the direction of their activities, but also the decisive last word in pathological and specially in clinical questions. The clinical pictures were only "recognized" in so far as they reflected physiological laws; it was then attempted to read the separate symptoms in the light of these often very distorted physiological images. Often one constructed them oneself instead of finding them by faithful and impartial observation. Of Traube it must be said that he, too, often made clinical medicine the servant of physiology, losing himself in petty details and subtleties in symptomatology in order to preserve the most intimate connection possible with physiology, and other clinicians did the same.

All the prominent representatives of this generation of clinicians realized, no doubt, that a scientific nosography and symptomatology can only be based on clinical observation. They all made valuable casuistic contributions; for instance, Traube (to mention only caseous pneumonia and the coal-dust lung), Frerichs (acute atrophy of the liver, pulmonic stenosis, cerebrospinal sclerosis), Friedreich (atrophy of the muscles, Friedreich's disease), Griesinger (pseudohypertrophy of the muscles). Yet how far behind the French and English were we Germans in our estimate of casuistry? We need only think of Duchenne de Boulogne.

The criticism here directed by Naunyn against the clinicians who were too much influenced by physiology, reminds us of Sydenham's and Locke's censure of the representatives of chemistry in the seventeenth century, and indeed, the fault in both groups arose from the same cause, namely, an overweening pride in speculation and laboratory wisdom as contrasted with an interest in living nature as she appears in the motley world of morbid phenomena.

It is, as we see, only a scanty harvest of nosographical advance which Naunyn can present to us from this exuberant period of German medicine, and this paucity speaks for itself.

But the next generation of German clinicians took up clinical nosographical problems in earnest. Virchow's influence had

been weakened, Traube had died and been replaced by Leyden and he together with the ageing Frerichs and a number of prominent clinicians throughout Germany inaugurated a new and more clinical era in medicine, while Berlin was growing to be the capital of the new German empire. On this subject Naunyn writes:

Not until after 1870 did we come into the full enjoyment of building up our complexes of symptoms, our clinical pictures empirically. The more earnestly we became absorbed in our cases the more did our interest in casuistry increase, and now our good training in the methods used in anatomy, physiology and chemistry (the technique of examination) made good. The demand for a thorough examination of the cases gained more and more ground as the condition for "a serviceable case." These endeavors soon bore ample fruit; thus in neurology, the abdominal diseases, the diseases of the blood, but above all and most brilliantly in the pathology of metabolism. In the works on metabolism in fever and diabetes German clinical medicine early asserted its superiority. We owe this to our physiological school, the Pettenkofer-Voit school at Munich. It was a very long time before the value of such investigations began to dawn on the mind of the French.

So we see how German physiological medicine was in the main preparatory, leading up to the new clinical era. It contributed to clinical medicine chiefly through the stimulus it gave to the introduction of new methods of investigation, graphic, microscopic and chemical. These methods were developed chiefly by the physiologists and chemists, but the clinicians quickly adopted them. We may mention, for instance, the introduction, in 1852, of methods for the counting of hemacytes by the physiologist, Vierordt, and his employment, in 1855, of the sphygmograph for investigating the pulse, the measurement of the color of the blood by the anatomist, Welcher, and the invention of methods for the examination of the urine by the physiological chemists, Trommer and Heller. In this connection

we may also mention the invention of the ophthalmoscope in 1850 by the physiologist, Helmholtz. This initiated a flourishing period in ophthalmology in Germany and was quickly followed by the introduction of Garcia's and Türk's laryngoscopes (1854 and 1857) and of Troeltsch's otoscope (1856).

In the endeavor to introduce physiological methods into the clinic contemporary French scientists bore an important part. Thus we find Andral, one of the older members of the Paris school, advocating clinical thermometry in 1841, and about the same time he began to determine the content of fibrin and corpuscles in the blood, and of albumin in serum, by weight, and he introduced this as a clinical method. By his studies on the blood, of which he has given a summary in his "Essai d'hématologie," which appeared in 1843, Andral made a weighty contribution to what may be called the physiological clinic. Just as his "Clinique Médicale" has stood as a model for anatomico-clinical studies, so his "Hematology," by its methodical lucidity, has served the same purpose for all later physiological clinical investigations. He began his studies on the blood by making a quantitative investigation of the components of the blood in healthy individuals and in various animals, and then he investigated the condition of the blood in a series of patients suffering from various diseases. By these studies he laid the foundation of future hematology.

The Paris physiologist, Marey, greatly advanced clinical medicine in another way, namely, by the development of various graphic methods. Not until this had been done could serviceable sphygmographs, cardiographs, etc., be constructed.

During this period the same conflict of ideas that was taking place in Germany was occurring in France. Claude Bernard, the successor of Magendie, was not only brilliantly continuing the work in experimental physiology, but at the same time he was making strenuous endeavors to introduce



experimental methods into pathology. In this attempt he himself made important contributions to medicine, such as those resulting from his well-known investigations on glycosuria.

To him experimental medicine was synonymous with scientific medicine. He set forth his views on this matter, especially in his "Introduction à l'étude de la médecine expérimentale," which was published in 1865. Here he set down clearly and convincingly the part played by experimentation in medicine and described its special methods, one might say, its philosophy. Less clearly did he see the importance of clinical observation as a scientific method. His views on this subject are perhaps most clearly seen in a passage from his "Leçons sur le diabète," which appeared in 1877. He says: "La médecine, riche des faits acquis à l'hôpital, peut maintenant le quitter pour aller dans le laboratoire. En prenant la forme de médecine expérimentale, elle devient science pure."

In this invitation to desert the bedside in favor of the laboratory he expressed the real tendency of the old physiological medicine. He looked upon the work of clinical medicine at the bedside as essentially concluded. He seemed to have no eye for the fact that the problems disclosed by the examination of patients were, as yet, far from solved. To him diseases represented well-known phenomena mature for laboratory study. He had not the slightest comprehension of the continual growth, the continual scientific development and transformation of conceptions of diseases which take place in clinical medicine. A similar point of view is still sometimes taken by physiologists and experimental pathologists who have received their training far from the bedside. For instance, Pawlow develops quite similar views in a lecture delivered in 1900 entitled "Das Experiment." He writes here about clinical medicine that "in the thousand years of its existence it has succeeded in definitely establishing the types of the different diseases and in giving a nearly perfect

morphology of the pathological conditions." Therefore at present, experiment is the only fruitful method in medical research.

Undaunted by such want of respect for clinical scientific work by the physiologists, French clinical medicine of this period maintained the tradition of the Paris school and continued its nosographical work, but the conflict between the divergent views often resulted in controversy. The chief leaders of clinical medicine in France at this time were Lasègue and Trousseau.

Lasègue is chiefly known as an eminent neurologist. To him we are indebted for the first description of the mania of persecution, of nervous anorexia and many other excellent observations. But as editor of the *Archives Générales de Médecine* he was also an active medical journalist and was much concerned with the problems arising from a comparison of the methods employed by the German physiological school with the more clinical methods employed chiefly by the French and English, especially the problem concerning the relative value of these two types of work for the advancement of medicine.

Although Lasègue apparently failed to understand the great progress which was gradually being made by the employment of the more exact methods of investigation and experimentation, he clearly saw the harm resulting from the subordination of clinical observation to the reasoning of chemists and theorists. He states:

But fortunately, the danger resulting from the opinion of these physiologists that they can disregard medical observation is less than one would think. They observe little, and they observe badly. They explain much, or rather, they explain everything, and they pass quickly from hypothesis to practice. But after the most adventurous excursions they all end peacefully at the same point, the point which had already been reached, and medicine proceeds undisturbed, though with caution, on its onward march.

In Trousseau France had a clinical observer of the very first rank. His description

of diphtheria in its various forms and stages is well known. He advocated the introduction of tracheotomy and thoracocentesis, and his studies on typhoid fever, scarlatina and many other diseases are of great value. In his famous "*Clinique médicale de l'Hôtel Dieu*" (1861) he repeatedly emphasized the great importance of observation at the bedside: "To know the natural course of the diseases is more than one half of medicine." While joining issue with the theorists and especially opposing the propensity of the chemists to intrude into the domains of clinical medicine, he lucidly defends the clinical, nosographical method, which the Germans had rejected. He was the disciple and warm admirer of Bretonneau and supported his doctrine of specific diseases. Indeed it was in the eloquent lectures of Trousseau that this doctrine assumed its ultimate form.

Concerning the specific nature of disease he says:

This important question dominates all pathology, all therapy, in a word, all medical science. The natural history of the diseases resembles that of the animals and plants; it deals, in the same way, with specific properties which separate the species.

In his clinical lectures he adduces a series of examples of specific properties of diseases. Particularly striking is the specific character of syphilis. After coitus impurus a small vesicle on the penis is often observed. In one case this is a simple herpes praeputii, the vesicles of which dry up and disappear without leaving any consequences. In another case it is the beginning of an *ulcus induratum* with succeeding general manifestations of disease. At the onset both lesions have the same character, but in the second case, additional specific properties of the greatest importance are present, and he clearly formulated the view which was also Bretonneau's: "That which gives the specific diseases their immutable properties is not the quantity but the quality of the morbid cause." To each particular cause of disease

the system replies with specific and characteristic phenomena. For instance, in chronic lead-poisoning the morbid phenomena are extremely characteristic and are obviously distinct from the phenomena which are associated with chronic mercury poisoning.

Trousseau has here made use of an argument which is in reality conclusive regarding the whole question of the right of nosography to be called a scientific method. That which justifies the effort to shape definite clinical pictures, to group cases which show a characteristic symptom-complex, and exhibit a typical course—and to describe the result of our labor as a disease-entity—is after all the conviction that every time we can thus set up a separate disease, we are at the same time on the track of a specific morbid cause. Hence the work of the nosographical method by no means consists in a mere description of the phenomena but also represents an endeavor to understand their interconnection.

What obstructed the advance of clinical nosographical research at this period was, primarily, the complete lack of knowledge concerning the most frequent, specific etiological factor in pathology, namely, infection; but no long time was to pass after Trousseau made the afore-cited remarks before the utter darkness would give way to light.

Indeed, Pasteur had already performed his brilliant experiments relating to fermentation and putrefaction, and Trousseau saw as clearly as Lister and Davaine the significance which these researches might have for disease, and he saw also that the doctrine of discovery of specific fermentations gave great support to the whole doctrine of specific diseases.

When Trousseau died in 1867 Pasteur was in the midst of his fight against the silkworm disease, and he had thus started upon the series of discoveries in the field of pathology which followed each other in rapid succession during the following decades and which revolutionized theoretical as well as applied medicine and surgery.

## IV

## THE BACTERIOLOGICAL CLINIC

By Pasteur's fundamental experimental work, the fact was established that a whole series of diseases is produced by certain distinct microorganisms, and thus the nature of specificity was at least in part unveiled. Sydenham, Bretonneau and Trousseau had been right; there were really specific diseases and specific morbid causes. Some of the most disputed problems of clinical medicine of the last centuries had suddenly been elucidated. The ever-recurring craving of the clinicians for "ontology," for fixed categories of diseases, was, then, fully justified. The *quid divinum* of the diseases referred to by Sydenham and Bretonneau had now taken definite shape, and a reconsideration of the concepts of disease from an etiological standpoint was now to be undertaken, since at last the nature of the cause of the commonest and the most formidable diseases had been revealed.

The result was bound to be a complete revolution of ideas and aims, more especially in Germany, the home of the physiological school. Hence, while the new medicine founded on Pasteur's and Koch's work met with an enthusiastic sympathy from the whole of the younger generation, it received a somewhat sullen and cool reception among the older group of physicians, among whom Virchow had been and still was the leader. Actual opposition was, of course, out of the question, but the leap from Virchow's to Koch's medicine was too great to be made painlessly, and as science marched onward, things grew no better. In proportion as ample amends were made to Sydenham and his successors, Virchow's prestige diminished. As Behring wrote in 1912: "Sydenham was everything that Virchow had energetically fought; he was an ontologist, specificist, humoral pathologist and etiological humoral therapist." Of course, Virchow's fundamental work in microscopical and pathological anatomy did not lose in value, but new views concerning the pathology of all

infectious diseases now prevailed, and this had a revolutionizing effect on clinical medicine.

Moreover, a new technique in the examination of patients, which could, without difficulty, be applied at the bedside, was now being established. Following the discovery of methods for staining bacteria, developed by Ehrlich and Weigert, and later by Gram, Ziehl and others, the demonstration of the specific bacterium concerned in a given case could often be made at once, and so a specific diagnosis be immediately established. This was of great value in clarifying and developing the clinical pictures of specific diseases, for now the non-specific cases could at once be set aside and only the cases in which the bacteriological examination gave positive results be retained for comparison.

Specific staining reactions were found for the tubercle bacillus, the leprosy bacillus, and the gonococcus, and even without such specific methods, it was possible to distinguish, at least with a considerable degree of certainty, such bacteria as the pneumococcus, the meningococcus, the streptococcus, and others. In addition to this, special cultural methods were devised which permitted the ready detection of other bacteria, as the diphtheria bacillus, the typhus bacillus, the cholera spirillum, etc. This made possible early specific diagnoses in a large group of diseases. Yet another way to specific diagnoses was later opened to clinical medicine by the discovery of the various specific serum reactions, such as the agglutination phenomenon, which was applied in the diagnosis of typhoid fever by Widal, and the fixation of complement reaction, which was applied by Bordet and Wassermann to the diagnosis of syphilis.

As a result of the employment of these specific diagnostic methods there occurred a revision of all existing clinical categories of infectious diseases, including most of

the acute inflammations localized in the various organs. Diseases now came to be viewed from an etiological point of view, and the efforts of clinicians were directed towards replacing as far as possible the nosography founded on anatomy by a nosography founded on the morbid causes.

This was not a difficult task so far as the typical acute infectious diseases were concerned. As we have seen, the picture of these diseases had been usually constructed with regard to their general clinical symptoms, characteristic course and epidemiology; they were quite obviously etiological entities, only waiting to have their causes demonstrated. With respect to the more atypical diseases, such as the suppurative inflammations in the various organs, greater and more astonishing alterations in prevailing concepts were now rendered necessary. For instance, in 1880, Pasteur announced that he had found the same bacterium as the cause of the furuncle and of acute osteomyelitis. As Charrin has stated, this communication was greeted with silence by the more polite, so absurd did it seem, but it was only the prelude to a series of discoveries of a similar kind.

The changes in clinical concepts brought about by the discoveries of this period were probably greatest in the case of tuberculosis. By Koch's classical work on tuberculosis, which appeared in 1881, the unity of this disease as regards etiology was established. Laënnec's views, dating from the beginning of the century, now received their ultimate proof. Villemin's experimental work from 1865 had received its corroboration, and Virchow's dualistic doctrine had been found to be an error. Tubercle bacilli were demonstrated by Koch not only in the various tuberculous tissues of the lungs, but also in the tissues of other infected organs, in tuberculosis of the intestines, of the bones, tumor albus, lupus, glandular tuberculosis and in animal tuberculosis. The staining technique for tubercle bacilli was soon developed by Ehrlich's introduction of

aniline staining and acid decolorization and by Ziehl's substitution of carbolic solution for aniline oil, so that a bedside examination could quickly be made. Thousands and thousands of examinations were now made, at first in Germany, but very soon in hospitals all over the world, and the clinical aspect of tuberculosis, which was once so complicated, was soon enormously simplified.

All the different types of chronic pneumonia, apex catarrh, apex pneumonia, etc., which had been set up by Niemeyer and his successors, as well as Buhl's desquamative pneumonia and other similar affections of the lungs, disappeared, and the picture of tuberculosis of the lungs as it had been drawn up by Laënnec sixty-five years before, came more and more clearly into view. Similarly, the various forms of caries and tuberculous affections of the joints, as well as the glandular affections and other scrofulous complaints, were now seen with new eyes. The tuberculous forms were recognized as such and were then without difficulty clinically distinguished from other kinds of affections of the bones, joints, or glands.

In brief, all the various tuberculous affections of man were now united into one single picture of a specific, chronic, infectious disease with a uniform etiology.

Something similar took place in the case of diphtheria. After Loeffler had discovered the bacillus of diphtheria in 1885 and a clinical, diagnostic method, involving the cultivation of the bacteria from the membrane, had been devised, it was very soon proved beyond contradiction that croup and pharyngeal diphtheria were due to one and the same infectious agent and were manifestations of the same specific disease. As in the case of tuberculosis, the dualistic conception had to give place to the older and clearer conception of a unity, which we owe, in this case, to Bretonneau's clinical acumen.

Even in the case of certain other infectious diseases in which no pathogenic microbes could be demonstrated, the evi-

dence that each was etiologically distinct became more and more convincing, and this, of course, influenced the clinician's whole attitude toward the clinical phenomena. In this connection it is interesting to trace the changes which occurred during this period in the attitude of physicians toward the other great chronic infectious disease, syphilis. The changes were undoubtedly directly related to the development of the etiological point of view in clinical medicine, though the specific microbe of syphilis was not discovered until 1905 by the German zoologist, Schaudinn. During the latter half of the nineteenth century the clinicians gradually grouped, and even identified, with this disease a series of organic affections of the nervous system, heart and aorta, which had previously been clinically and anatomically well observed and studied, but which hitherto had not been thought to have any connection with syphilis.

This movement in clinical medicine concerning syphilis illustrates especially well certain aspects of the methods of nosography. In clinical medicine it has been the aim to endeavor further to classify, on an anatomical basis, all those affections in which the same symptoms occur, that is, to classify them according to the seat of the diseases and to the different lesions of the organs involved. For instance, cases showing paralysis are not all grouped together but are placed in various groups arranged according to the lesions of the organs involved in the disease. The same is true regarding cough or vomiting or any other symptom. The result has been to establish a series of clinico-pathological, instead of pure symptomatic, pictures. Side by side with this, however, there has been a sort of synthetic movement, an attempt to combine in one collective picture certain groups of affections in which, though different organs are involved, yet there is exhibited a certain uniformity in finer structural changes. We saw how this took place in the case of tuberculosis, and the same has gradually occurred in the case of syphilis. An impor-

tant and very valuable piece of work which was largely instrumental in bringing about this synthetic movement in the conception of syphilis was the description by Virchow of the anatomical alterations in the various organs in a group of affections considered syphilitic. At that time, however, large groups of affections now known to be syphilitic were not thought to have any direct relation to this disease.

This was true of one of the most characteristic nervous affections, namely, tabes dorsalis. This condition was first accurately described by the French clinician, Duchenne de Boulogne, as a distinct and well characterized clinical complex of symptoms, whose chief phenomenon, locomotor ataxia, he had described in 1856. Although the underlying anatomical lesion of the posterior columns of the spinal cord had previously been seen by Cruveilhier, and Romberg had described several of the symptoms, to Duchenne is due the credit for having first definitely outlined its clinical features. His study was further elaborated by Trousseau to whom it was at once obvious that this was a well delimited pathological condition. Nevertheless the attempt was made on physiological grounds to associate this condition with the ataxia associated with affections of the cerebellum and with other spinal lesions. Trousseau protested against this and maintained that "a disease showing such constancy in its symptoms and in its lesions must be conceived as a specific disease," which meant, according to Trousseau's way of thinking, that it was an etiological unity.

Time proved the correctness of his opinion. In 1876 Fournier advanced the hypothesis that syphilis was the cause of tabes, and the following decades saw the accumulation of an ever-increasing number of observations and statistics in favor of this hypothesis. Nevertheless, for a long time it was opposed and rejected.

A similar discussion occurred in regard to general paralysis, the morbid picture of which was first drawn up in 1822 under the

name of arachnoiditis chronica by Bayle. This condition was first conceived of as a syphilitic affection by the Germans, Esmarch and Jessen, in 1857. As in the case of tabes, the method of investigation of this question consisted in the collection of statistics relative to the frequency of occurrence of syphilis in the history of patients suffering from the disease. In 1873 Jespersen at St. Hans Hospital in Denmark produced statistics which established the truth of the contention of Esmarch and Jessen, but these statistics received little attention. Gradually confirmatory evidence accumulated, but, as in the case of tabes, the new view made but slow headway, and it became customary to class these two affections together as parasyphilitic, not as actually syphilitic affections. Indeed it is only very recently that all opposition to the idea that general paralysis is a true syphilitic manifestation disappeared. In the first place, the introduction of spinal puncture made possible the study of the changes in the spinal fluid. Then the discovery of the method of complement fixation permitted an accurate diagnosis of syphilis to be made. Next in 1905, Schaudinn discovered the etiological agent of syphilis, the *Spirochaeta pallida*. Finally, Noguchi demonstrated the presence of this organism in the brain of persons suffering from general paralysis. Only then did all opposition disappear and general paralysis and tabes come to be universally recognized as due to syphilitic infection and the two symptom-complexes regarded as component parts of the complex clinical picture of syphilis.

A similar course of events transpired in relation to certain affections of the blood-vessels, particularly, aortic aneurysm. Vesalius observed this affection at the post-mortem table, and in the sixteenth century Fernel and Ambroise Paré believed that it could be caused by syphilis. These old observations did not, however, have any influence on the current view. The symptoms and pathological anatomy of aneurysm

had been well described in the first half of the nineteenth century. In 1876 the Englishman, Welch, asserted that syphilis was the most frequent cause of aneurysm, and in the following year, the Norwegian, Heiberg, expressed the same opinion. In the following decades the view that syphilis was the only or chief cause of aneurysm was little by little almost universally accepted. As in the case of the nervous affections, the chief evidence presented in support of this view consisted of statistics. Thus Rasch in Copenhagen demonstrated the presence of syphilis in 81 per cent of the cases of aneurysm and Steller at Kiel in 85 per cent of the cases. In addition to the statistical evidence, the occurrence of a characteristic syphilitic affection of the great vessels, with peculiar specific anatomical features, was demonstrated. Nevertheless, it still required the evidence obtained by testing patients by the reaction of complement fixation (Wassermann's reaction) to sweep away the doubts which still remained.

So we see how the characteristic picture, now so well known, of the syphilitic infection, not only of the skin and the mucous membranes, but also of the internal organs, has been laboriously put together in the course of the century, and to this day, no doubt, the last stage has not yet been reached in the delineation of visceral syphilis in its various aspects. But an etiological unity has now been created out of all the various syphilitic affections which would excite the admiration of the older ontologists. Moreover, this definitely specific disease has long had its own specific therapy which has reached its highest development in the introduction of Ehrlich's salvarsan.

For hand in hand with the study of the etiology and pathogenesis of the infectious diseases there has proceeded a therapeutic movement of signal importance. Here again it was Pasteur who made the beginning by his ingenious experiments concerning the prevention of rabies even after infection had occurred. His mode of attack of the problem

consisted in first inducing a decrease of virulence in the virus, and then employing this virus for therapeutic vaccination. Thus the way was mapped out for the discovery of specific remedies for specific diseases. The effect of Pasteur's discovery was overwhelming and the mind was carried back, quite naturally, not only to Jenner, who was the originator of the first protective vaccination, but also to Sydenham who first advanced the demand for specific remedies. This was indeed for a long time considered a great defect in Sydenham. As a matter of fact, there is hardly anything for which Sydenham has been so severely taxed by later physiological medicine as for his doctrine of specific remedies. Wunderlich, for instance, wrote in 1859 concerning Sydenham:

He was a sober and comparatively unprejudiced observer, but he was no acute thinker. His vagueness of thought deluded him into ideas which led his successors to take the wrong paths. To such ideas belong his postulates concerning a distinct nomenclature and specification of the different forms of diseases, and his delusion that specific remedies may be found for all or most diseases.

On the other hand, Sydenham's hope had induced the nosologists, who followed him, to conduct an eager search for specific remedies for all the different diseases which they described and named. As Wunderlich has pointed out, this actually led to the grossest empiricism. "If a morbid species had been ascertained, a formula of cure was immediately in readiness on the authority of some professor. Thus everything possible was being done for the patient, and the scientific conscience of the physician was salved." The critical pathologico-anatomical school had completely put an end to this belief in specific remedies, but, on the other hand, there was substituted the gloomiest nihilism in therapy. In place of this the physiological school sought to develop,

through physiological arguments and pharmacological experiments, a therapy which claimed to be scientific and rational in that it was attempted to modify the treatment to suit the individual. As a matter of fact the form of treatment recommended was merely palliative and symptomatic and in the main led to disappointment. In fevers the temperature was lowered but the disease developed in the usual way; pain was alleviated by morphia and other anodynes, but the course of the disease was not appreciably altered, and gradually clinicians had been compelled to center their hopes on the future and depend on the advance of science. Now suddenly the possibility of specific remedies again appeared; this time in a new and more attractive shape, not as a healing herb accidentally discovered, but as a specifically reacting substance logically derived through a series of scientific experiments.

This possibility, as we know, developed into fact. In continuation of Pasteur's work, Roux and Behring introduced serum therapy, and as a further result of experimental pathology Ehrlich created chemotherapy.

By these great discoveries and inventions specific pathology had been firmly enthroned and specific therapy had become the hope of physicians. This faith was not seriously diminished even by Koch's premature attempt to introduce a specific therapy for tuberculosis in his well-known tuberculin cure. As yet such a specific therapy in this disease has not been found, but who doubts but that we shall obtain it in some shape or other at some future time?

As we have seen, etiological researches on infectious diseases created a firm basis for the nosography of these conditions and brought clarity into the conception concerning their pathology. But this applies only to the infectious diseases, and all other diseases were left unaffected by this movement.

## FUNCTIONAL DIAGNOSIS

As soon as German clinical medicine emancipated itself from the Virchow-Traube tradition with its overemphasis on animal experimentation as the principal method of scientific research, it turned actively, as we have seen, to general nosographical work, a method of study that had always attracted many gifted scientists in England and France. This change in direction was most plainly evidenced when the new *Zeitschrift für klinische Medizin* was established by Frerichs and Leyden in 1880. In the introduction to the first volume Frerichs asserted the independence of clinical medicine and opposed the tendency for the theoretical branches of science to predominate as detrimental to progress in medicine. The main method in the study of disease, he maintained, must be the collection of information at the bedside by every means available to modern science. Experiments on animals are indispensable when observation of patients alone does not provide means for solving the problems which are involved, but "experimental pathology should not, as sometimes happens, lay claim as an independent science, to the leading rôle in studying diseases. This method is as little suited to this end as was once chemistry, or physics, or morphology. The decisive method of approach is and always will be the observation of patients."

These views stimulated German clinicians to strenuous activity, and as Naunyn has pointed out, the sound physiological training of these men helped them to obtain important results. In the first volumes of the above-mentioned periodical Basch published his important measurements of the blood-pressure in various morbid conditions. Ehrlich began the publication of his studies on leucocytes in diseases of the blood, and Leyden continued his studies on diseases of the nervous system. German medicine can boast a number of famous clinicians who, at this time, worked in a similar

manner, such as Naunyn, Erb, Westphal, Nothnagel, Quincke, Kussmaul, and Friedrich, while at the same time Duchenne, Vulpian, Brown-Séquard, Charcot, and Marie in France, Gull, Hughlings-Jackson, Gowers in England, and Osler, Beard, Huntington, Hammond and Milroy in America, all made weighty and primarily nosographical contributions to internal medicine. Among Scandinavian scientists of this school we may mention chiefly the Danish neurologist, C. Lange, who in 1872 described chronic spinal meningitis as the cause of tabes dorsalis and Magnus Huss of Sweden who about the middle of the century described the clinical features of chronic alcoholism.

All these discoveries of new morbid pictures and new diseases and the elaboration and extension of knowledge concerning those already familiar depended primarily upon the thorough observation of patients and the examination, by accurate methods, of the morbid phenomena which they exhibited during life, and the demonstration post mortem of the underlying lesions, *la méthode nosologique ou nosographique*, as Charcot called this method which he, himself, employed so successfully in neurology. It was by this method that he succeeded in establishing such clinical entities as amyotrophic lateral sclerosis and disseminated sclerosis, and further, that he developed the application of Trousseau's doctrine of *les formes frustes*, i.e., the less typical, or as it were, half suppressed examples of disease which in every malady group themselves round the outspoken and characteristic forms. In a lecture delivered in 1882 Charcot described the principles of research which he followed and discussed, more especially the nosographical method. In order to emphasize the range of the method he referred to Duchenne de Boulogne's incomparable work in which he established those great types of disease



known as progressive muscular atrophy, infantile paralysis, pseudohypertrophic paralysis, glossolaryngeal paralysis and locomotor ataxia.

Cette création a peuplé d'êtres animés, vivants, conformes à la réalité concrète, reconus de tous, des cadres jusque-là restés vides ou remplis de formes confuses, cette création appartient toute entière à la méthode nosographique.

Next he described how the method, without change of character, had been extended by including the study of pathological anatomy and how it had thus obtained still further support. Finally he showed how the doctrine of localization, applied to the pathology of the nervous system, had given to nosology a physiological as well as an anatomical basis.

It was plain to him that the fundamental sciences were the source from which clinical observation and analysis must always derive their impulses for advance. "Sans rénovation scientifique, elle deviendrait bientôt une routine attardée et comme stéréotypée," but he concludes by emphasizing the supremacy of clinical observation: "Le rôle prépondérant, la juridiction suprême devra toujours appartenir à l'observation clinique."

During this period neuropathology reached its highest level since the nosographical method is particularly well adapted to be applied to this branch of pathology.

Meanwhile a new scientific movement had been initiated in Germany which was soon to become of great importance in the development of clinical medicine. This movement was inaugurated by Kussmaul, one of the most prominent clinicians of Germany. At Freiburg, in 1867, he began to employ the hitherto little noticed and less used stomach-pump in the treatment of dilatation of the stomach associated with stagnation of its contents. The results he obtained were astonishingly favorable and created the greatest sensation in the medical world. Kussmaul saw at once that in emptying the stomach by means of the

stomach-pump a method had been gained which was not only of the greatest therapeutic interest, but one which might also acquire significance from a diagnostic point of view and also be of value in the further study of gastric disease. This opinion was very soon corroborated. Only a few years later (1871) Leube proposed that the action of the stomach should be examined by giving patients various foods and then, after a certain time had elapsed, withdrawing and studying the contents of the stomach. One could then learn how quickly the stomach emptied itself of food, and how far the food had been digested at any given time. By digestion experiments with the gastric contents, made with or without the addition of hydrochloric acid, he was able to demonstrate (1873) that there is sometimes a deficiency of acid in the stomach.

In 1875, at the suggestion of Jürgensen and Ewald, the impractical stomach-pump was replaced by soft tubes, and this made the method much more convenient. In the following years this new physiological mode of investigation was eagerly and widely applied. Research took place, especially at Kussmaul's clinic at Strasburg where Szabo demonstrated the difference between free and combined hydrochloric acid (1877) and v. d. Velden showed (1879) that free hydrochloric acid was wanting under certain conditions, as in patients suffering from typhus fever and especially in patients suffering from cancer of the stomach. These observations, owing to their great practical diagnostic significance, marked an epoch. In the following decade attention was focused chiefly on the clinical relations of ventricular secretion, and a number of researches on this subject were published from the German clinics.

In 1882 Reichmann in Poland described hypersecretion of the gastric juice (gastro-succorrhœa) and in 1885 Rosbach described intermittent hypersecretion. During the years 1884-86 Riegel and also v. d. Velden distinguished between hyperacidity and hypersecretion, continuous or paroxysmal.

The enquiry into the motor function of the stomach which had been undertaken by Leube was continued chiefly by his young disciple, Ottomar Rosenbach, who published his results in his well-known paper in 1878. In this paper, for the first time, the new investigations concerning the functions of the stomach were viewed in their broader aspects, and were considered to indicate the inauguration of an entirely new movement in clinical medicine. This publication, therefore, deserves to be mentioned at greater length.

Ottomar Rosenbach, then twenty-seven years old, was a true child of German physiological medicine. He was primarily a disciple of Cohnheim and of Traube, the latter being also his near relation. Generally speaking he was more a philosopher than a clinician, more a lover of argument than an observer. His numerous papers are indeed so burdened with philosophical reflections that one reads them with difficulty. This was undoubtedly one of the causes of the comparatively ungracious reception which was accorded to his literary work during his lifetime. Nevertheless he has had a great influence on modern clinical medicine, primarily in Germany, but also wherever centers of scientific clinical work have existed. His peculiar power consisted in enriching clinical medicine with valuable new concepts, new catchwords some might call them. For instance, in the paper of 1878 which we have just mentioned, he introduced the term "ventricular insufficiency" analogous to the term "cardiac insufficiency," a phrase which had recently been introduced by v. Dusch. His aim was to replace the purely anatomical notion of ventricular dilatation, which had previously been held, by a physiological concept. The idea he wished to convey by the term "ventricular insufficiency" was a disproportion between the muscular power of the stomach and the amount of work demanded of it. He considered it important.

Die Medizin, soweit es berechtigt ist, von der Selbstherrlichkeit der pathologisch-anatomi-

schen Betrachtungsweise zu befreien. Uns muss es, da wir heilen wollen, darauf ankommen, nicht einen irreparablen pathologischen Zustand zu diagnostizieren, sondern das Entstehen des Leidens, den Beginn des Prozesses, die *Functio laesa* des Organs frühzeitig zu erkennen, und darum müssen wir auf die Funktionsprüfung den Hauptakzent legen.

According to Rosenbach it is not by ascertaining anatomic alterations in an organ but by testing its functions physiologically that information is obtained of the first stage of an affection. The behaviour of the stomach can be investigated by introducing a test meal, consisting of a definite quantity of food, such as was proposed by Leube, or even, under certain circumstances and for definite reasons, indigestible food, such as dried berries. Later, after a fixed interval, the stomach is emptied and contents studied. Gastric insufficiency which may be of various degrees may then be detected and studied. By exceeding the functional limit of the expelling motoric force, one creates a *relative insufficiency* of a stomach which may be perfectly able to cope with a less exacting task; but if the stomach is permanently overworked this relative insufficiency sooner or later will develop into an *absolute insufficiency*. In succeeding years Rosenbach described intestinal insufficiency in cases of intestinal stenosis. He also sought to demonstrate an insufficiency of the glandular apparatus of the gastro-intestinal tract which he thought sometimes occurred in certain forms of albuminuria, in diabetes, in obesity and other metabolic disturbances, conditions which were attributed by him to such processes as defective oxidation, defective action of the kidneys or of the pancreas.

In connection with the conception of insufficiency, Rosenbach introduced the term "latent reserve force" of the organs, by which he meant the force which comes into play when the demands upon the organs become greater than normal. He demonstrated this force primarily in the case of the heart. This demonstration was

made in connection with his experiments on the artificial production of valvular diseases, carried out under the stimulus of Cohnheim (1878). During these experiments he produced insufficiency of the aortic valves by creating a traumatic lesion. Under these circumstances he found that the heart maintained the circulation without interruption just as before, and it did this because it was able to utilize its reserve force. He thought he could demonstrate similar reserve forces in all other organs, or at any rate, show that they were probably present. He held that in order to judge of the condition of any organ it is above all necessary accurately to estimate its functional capacity; it is not enough to ascertain whether gross anatomical alterations are present which interfere with its activity. Moreover, diminished power of work or increased strain on the organ must be demonstrable at an early stage in the development of a malady. In other words, tests are required by which functional power may be measured; methods of *functional diagnosis* must be established. In a little book, "Grundlagen, Aufgaben und Grenzen der Therapie," published in 1891, Rosenbach expanded his ideas, pointing out more particularly the significance of functional diagnosis in relation to therapy.

The diagnosis of the disturbances of the tissue of the diseased organ which is aimed at by the predominant pathologico-anatomical school furnishes the systematician with an apparently convenient classification of the diseases, but it causes the greatest difficulties to the person who is to cure the diseases as it only indicates the rough changes in the tissues, *i.e.*, the permanent changes. But in chronic diseases it must above all be the object to recognize the disease in its very first stage, *i.e.*, the incipient functional disorder.

Rosenbach, as has been said, distinguished, therefore, between relative and absolute insufficiency. The former is curable; it may roughly be said to correspond to exhaustion, or fatigue of the organ; the latter is associated with changes in the chemical or

physiological texture of an organ, with or without compensating hypertrophy or its equivalent.

We must not wait, therefore, till permanent dilatation of the stomach or heart has developed, or paralysis of the intestines has occurred, since "*wir heilen und nicht klassifizieren wollen.*" Our aim must be to recognize insufficiency, that is to say, a state in which there is disproportion between the demand made on an organ and its ability to perform work.

To demonstrate insufficiency of this sort new methods are required, methods by which the working capacity of organs, acting under physiological conditions and with a definite output of work may be measured. The stomach is investigated by means of a test meal, the heart by a certain amount of muscular work, the glands by examining the metabolic processes.

The object is to develop a new form for diagnosis, which might be called the functional as opposed to the anatomical form. Functional diagnosis aims at discovering the genesis of the disease, at recognizing the transition from fatigue to disorder of the tissues. By demonstrating incipient morbidity and lessening the demands on the diseased organ we may achieve a cure which would be impossible when permanent changes in the tissues have set in.

The views thus advocated by Rosenbach, and already developed in his first paper in 1878, gained wide approbation. While Kussmaul and his disciples were content to regard functional gastric anomalies merely as the signs of organic diseases in the stomach, such as cancer, ulcer and gastritis, Riegel was instrumental in introducing another view. To his mind hyperacidity and hypersecretion are independent secretory anomalies; they occur so frequently in patients with ulcer or ventricular dilatation because these affections are caused by these disorders in secretion, the secretory disturbances being the primary phenomena of the affections. Thus functional disorders were raised to the dignity of independent morbid categories, to disease entities. The symptoms of these disorders were described, their

course and complications. When a functional disorder was diagnosed, the matter was allowed to rest, and the treatment was adjusted to the conditions observed, no further energy being expended in determining or conjecturing what the cause of hyperacidity, or hypersecretion in each case might be.

Beside secretory disorders the various kinds of motor disturbances were also studied. Two distinct degrees of motor insufficiency, the first and second degrees, were described by Boas. These affections, especially the milder form, the so-called atonia ventriculi, were looked upon as primary functional disorders. Originally cessation of the secretion of hydrochloric acid in the stomach had been regarded as a sign of cancer or ventricular atrophy (Ewald). Einhorn later introduced the term of "achylia gastrica" (1892) to indicate a primary "nervous" functional disorder. This phrase was later elaborated by Martius in his book on achylia gastrica simplex (1897) and was elevated to the position of a congenital affection, a constitutional anomaly like color-blindness or hemophilia and the like.

Not only had a series of functional diagnoses been substituted for the purely symptomatic categories which still played a rôle in gastric pathology, under the name of dyspepsia and the like, but the old anatomical diagnoses had been practically discarded. This change in attitude affected cancer least of all, for it was difficult to disregard this entity, but it became the custom to employ the diagnosis "gastric ulcer" only when absolutely necessary. But most of all this point of view affected the use of the term gastritis, which from having been accorded the position of a dominant disease, disappeared almost entirely from clinical, medical nomenclature.

By instituting tests for functional capacity and making diagnoses based on these tests, a series of concepts of functional disease were created, that is to say, pictures of disease, indeed, one might even say

functional diseases themselves. These were what one looked for at the bedside; on these one founded one's therapy. The original idea of Rosenbach that the method of functional diagnosis might reveal the incipient stages of disease did not remain the leading thought in this movement. It was succeeded by an attitude of exultation because the pathologico-anatomical point of view had been superseded by the physiological. But since it was obviously necessary to work in the light of categories, a physiological classification was introduced and this was found to be more modern and attractive than the traditional anatomical classification which, from its very nature, seemed to preclude the possibility of successful therapeutic interference.

In analogy with what had been accomplished in regard to gastric conditions, Rosenbach sought to extend and develop functional diagnosis in regard to other organs, and to employ the terms relative and absolute insufficiency in connection with organs other than the stomach. This he attempted primarily in the case of the heart. Like the stomach, this is a muscular organ; its only function is motor, that of causing the blood to circulate. To establish functional tests and to make diagnoses on that basis at first appeared to offer no difficulties; experience, however, proved this view to be incorrect.

The soil had already been prepared for the introduction of this point of view concerning the heart, for the concepts "cardiac insufficiency" and "cardiac failure" had already been employed. The Dublin clinician, Stokes, in 1854, was the first to describe the heart failure which is common to most forms of heart disease as "weakness or deficient muscular power of the heart." The same general idea was expressed almost simultaneously by Beau in Paris (1856) but in a more complete and lucid manner. He called the complex of symptoms engendered through heart failure, *asystolie* and defined it as *une insuffisance de la systole du coeur*. Instead of the French term

*asystolie* v. Dusch introduced into German medicine in 1868 the term "cardiac insufficiency," a term which Rosenbach made popular and which was made, by him and by other German clinicians, chiefly Krehl and Jürgensen, the leading concept in the clinical study of heart disease in the following decades.

Rosenbach says:

In heart disease, for instance, it is not the object of the physician to determine the nature of the muscular affection of the heart (fatty degeneration, myocarditis, etc.) but solely to determine the muscular efficiency. The statement formerly so common that a definite affection of cardiac muscle is present and that it is characterized by definite pathological anatomic changes is superseded more and more by the statement that the difficulty resides in insufficiency of the muscular power of the heart.

Disorders of the circulation are in themselves evidence of insufficiency of muscular power of the heart, but attempts to demonstrate insufficiency by functional tests, especially in the milder stages of insufficiency, or accurately to measure varying degrees of insufficiency, present great difficulties. Rosenbach recommended as a test of insufficiency, that patients perform a certain definite amount of muscular work and that the effects of this on the pulse, respiration and general circulation be noted. Later the attempt was made to prescribe accurately the amounts of work to be performed in terms of walking, running, mounting stairs, climbing mountains, through the use of variously constructed ergostats, by cycling, etc. It proved impossible, however, to ascertain the extent of incompetence numerically by this method; only the roughest estimate could be obtained, since so many factors affect the result, chiefly psychic influences, but also the varying condition of the peripheral vessels and so forth.

The attempt was then made to obtain better results by including the measurement of blood-pressure in the investigation.

Through the work of the physiologists, Ludwig and Marey, the measurement of blood-pressure had become an important enquiry in physiology. Through the work of Basch and Potain, and later through the studies of Gärtner, Riva-Rocci and Recklinghausen measurements of blood-pressure in patients had been made possible. It was now actually proved that by measuring the increase and decrease of blood-pressure during and after the performance of muscular work, differences could be demonstrated between the behaviour of sound and of diseased hearts, but it proved even more difficult to draw inferences as to the efficiency of the heart from these observations than it was from the investigations of the pulse and respiration. These methods have, therefore, found no lasting favor in clinical medicine in spite of all the work expended on them. The name of the late Klaus Hansen, a Norwegian clinician, should also be mentioned in connection with these experiments concerning functional capacity of the heart. In all these studies, as Peter F. Holst has pointed out, no true measure of the working power of the heart in patients was obtained. The only result arrived at was a knowledge of the ease or difficulty with which acute failure of the heart could be produced. This production of heart failure, however, is a result that should have been avoided. Nevertheless, the endeavors to find methods for determining the working capacity of the heart in patients were continued. In recent years Sahli has attempted to determine the amount of blood flowing through the radial artery at each pulse beat by means of his sphygmobolometer. The method has not, however, been generally adopted.

Far greater importance must be attached to another movement, in which a quite different method of approach has been employed in the attempt to arrive at an understanding of the functional disorders of the heart. This study was initiated by the physiologists and is intimately connected with the modern development of

knowledge concerning the respiratory function. The movement was inaugurated by the energetic work of the Danish physiologist, Bohr, and has later been continued, chiefly by his many disciples. Bohr himself made one of the most important contributions to this subject in his attempt to develop functional diagnoses of the morbid condition of the lung. In the middle of the nineteenth century the study of the function of the lungs was advanced when Hutchinson in England invented the spirometer (1846), and with this apparatus determined the vital capacity of the lungs. Numerous investigators after him applied spirometry to the study of various lung diseases, more especially to tuberculosis. Compared with the importance of the stethoscope, and later of the roentgenogram, in the diagnosis of lung diseases, this method has occupied a subordinate place. After Panum's work in 1868 on the "vital middle position of the lung" little attention was given to the problems of lung measurement until Bohr in 1906 published his researches on "the vital middle position of the lung and its functional significance."

A series of investigations on this subject now saw the light in Denmark and abroad. Bohr himself came to regard measuring the middle position of the lung as rather important, and considered its variation as a regulatory mechanism of the organism. The study of this regulation and of its abnormalities had, he thought, importance in pathology in general, and more especially for an understanding of heart disease. "The middle position seems actually able to serve as a measure of the functional capacity of the heart," says Bohr in a later publication. Even if this has not proved true, Bohr's investigations, as pointed out by Rubow, aroused a greater interest than had hitherto existed in the pathological significance of the pulmonary circulation. Work in this field is not yet complete; it has recently been taken up in America by Peabody and by van Slyke and Lundsgaard.

Of considerably greater value in an investigation of the work of the heart than the examination of the capacity of the lungs are the experiments made by Krogh and Lindhard to determine the quantity of blood flowing through the lungs within a certain time, and on this basis to determine the minute output and the output per beat of the heart. It is obvious that in determining the quantity of blood flowing through the heart in a minute the most accurate measure possible of the work performed by the heart at that time is obtained. While Krogh and Lindhard employed the method worked out by themselves chiefly in physiological enquiries, Lundsgaard applied it in patients suffering from heart disease, and in this way was able to measure the degree of heart failure in valvular disease, and in certain forms of arrhythmia.

Another method of judging of the functional power of the heart was advocated by Kraus, namely, that of measuring the amount of oxygen in the venous blood and employing this information in making a quantitative expression of the state of the whole circulation. His methods, however, were imperfect and the results without great importance. Continued and exceedingly valuable enquiries along this and analogous lines have been conducted by Morawitz and Roehmer, and especially by Lundsgaard who employed methods of blood-gas analysis developed by van Slyke. These investigations have added important information concerning the functional power of the heart under normal and morbid conditions, but a wide field is left for further enquiry. Meanwhile these studies have been most important in the study of normal and pathological physiology. From the particular viewpoint of clinical study, however, with which it is the special purpose of this paper to deal, the results have as yet had comparatively slight significance. They have not led to the possibility of making functional diagnoses at the bedside analogous to those which can be made in diseases of the stomach. In determining the functional

power of the heart in a patient at a given moment no very great advance has been made since the days of Stokes and Beau, or, at any rate, since the time of Rosenbach. Nor have these researches led to the establishment of conceptions of functional diseases of the heart. But the road is now thrown open and is full of promise.

Along other lines, however, progress has been made which has led to results of great and immediate importance in the functional diagnosis of heart disease. Chief among these is the modern investigation of the arrhythmias of the heart. This study was introduced apparently in an attempt to determine the functional capacity of the heart by investigating the behavior of the pulse. From the time of the ancients the state of the pulse has, as we know, been the chief method of estimating the condition of the heart.

After Marey introduced his methods for the graphic registration of the pulse, numerous investigations were made by means of the sphygmograph, but the results were unimportant. It was only when Mackenzie introduced (1893) the polygraph which registered the pulse of the veins and arteries simultaneously that the enquiry gained importance. One of the chief causes of this great advance must, however, be sought in the recent evolution undergone in the study of the normal physiology of the heart under the leadership of Engelmann in Holland and of Gaskell in England. On the basis of their investigations Wenckebach and Mackenzie founded the present knowledge of a series of rhythmic disorders in the functions of the heart. This knowledge was further developed after Einthoven, a Dutch physiologist, worked out his electrocardiographic method for the examination of the heart, a method applied clinically chiefly by Thomas Lewis. A number of clinicians everywhere have worked strenuously in this field. The result has been, in the first place, a more thorough understanding of the construction of the heart and of the mechanism of the heart beat under normal

and abnormal conditions; but also the recognition, exceedingly important in the clinic, of a series of well-marked functional disorders such as extrasystolic arrhythmias, auricular fibrillation and the completely irregular pulse, partial and complete heart-block, and paroxysmal tachycardia. The history of the development of our knowledge concerning these functional disorders is similar to that which took place in the case of functional disorders of the stomach. Little by little the several irregularities have been raised to the dignity of functional diseases, perhaps more accurately described as entities of disease, the causes, symptoms, course and treatment of each of which may be studied and described as in the case of other independent "diseases."

The kidneys were next studied from the point of view of functional diagnosis. In respect to these organs also, recent decades have witnessed an exceedingly comprehensive series of investigations in which clinicians and physiologists have worked hand in hand. A survey of the line of development in this instance is also of interest for the better understanding of the tendencies in modern clinical science. In earlier times, from the days of Cotugno and Bright, the chief functional disorders known in affections of the kidneys were albuminuria and edema, and to these were added, by Traube and others, concomitant affections of the heart, especially hypertrophy of this organ. In these abnormalities there was, however, no possibility of measuring the degree of functional disability. The first important step in the modern sense towards instituting a functional investigation of this subject was made in 1897 when v. Korányi's works on osmotic pressure in the blood and urine appeared. By measuring the molecular concentration in these fluids, chiefly by means of cryoscopy he obtained a measure of the power of the kidneys to increase the molecular concentration of the urine, that is to say, a measure of one of the chief functions of the kidneys. From this starting point highly

developed methods of diagnosis were very soon evolved, founded on the determination of the physical condition of the urine and the blood.

By the physical methods applied by v. Korányi, cryoscopy and the estimation of electrical conductivity, information was obtained concerning the capacity of the kidneys to secrete solid substances. A frequent phenomenon in diseases of the kidneys was found to be loss of power to secrete concentrated urine, a condition which Korányi termed "hyposthenuria." When hyposthenuria was not compensated by the secretion of an abnormally ample quantity of dilute urine, the secretion of metabolic products became imperfect, and insufficiency of the kidneys supervened. This was dependent both on deficient secretion of salts, and on an insufficient secretion of water. It soon proved necessary, however, not to rest content with an examination of the total solid substances secreted by the kidneys, but to distinguish between nitrogenous substances, more especially urea, and mineral substances, more especially sodium chloride, since each of these was found to act quite differently. It soon became the predominant view that it was not so much the quantities of the substances eliminated as it was the retention of these substances in the system which was the sign and measure of insufficiency of the kidneys.

Of urea it had been known since the days of Bright that it accumulated in the blood in cases of uremia. Now it was ascertained (Strauss, Berlin, 1902) that increase in blood urea (or more correctly residual nitrogen) was a frequent phenomenon in patients suffering from kidney diseases and an important sign of insufficiency of the kidneys, even before symptoms of uremia were observed. Widal, in Paris, and Strauss then showed (1902) that there was a direct connection between the retention of sodium chloride and the formation of edema, and that edema might actually be produced by giving sodium chloride to

patients whose kidneys failed to secrete it satisfactorily.

By these methods several types of insufficiency of the kidneys were successfully distinguished. The attempt was now made further to develop the diagnosis of these disorders by introducing certain tests designed to demonstrate the capability of the kidneys (*Belastungsprüfung*) in patients suffering from affections of these organs. A water test was introduced as a measure of the power of the kidneys to secrete dilute and concentrated urine. A test of "variability" of this kind was first recommended by Klaus Hanssen and Backer Groendahl in Norway in 1903, and improved later by Strauss and others. The power of secreting sodium chloride was also tested by administering a certain dose of sodium chloride and noting the time of its appearance in the urine, and the power of secreting nitrogen was tested by giving a certain dose of urea and measuring the amount recovered.

A still better way of learning the capacity of the kidneys to secrete nitrogen was, however, at hand in the determination of the residual nitrogen in the blood. The methods for estimating this amount were, however, troublesome and only to a slight extent applicable in the study of patients because a fairly large quantity of blood was required to be withdrawn for the examination. Great improvement took place when the Scandinavian scientist, Ivar Bang, recently, but too prematurely, deceased, developed his special microchemical methods, through which the quantitative analysis of minute quantities of blood has been facilitated, at any rate in respect to its more important components. In this manner it became possible to determine the residual nitrogen in patients and an important method of estimating the functional capacity or insufficiency of the kidneys gained.

About the same time that v. Korányi introduced the freezing-point method, Achard and Castaigne in France initiated another kind of functional test for the kidneys by administering methylene blue



and noting the time of its appearance in the urine. The degree of delay in its secretion compared with the normal time of secretion was thought to provide an estimate of the functional power of the kidneys. Instead of methylene blue, a series of other substances have since been used, such as rosanilin, indigo carmine, uranine and most recently, phenolsulphonaphthalein. It seems to be true of them all that they can indeed be used for demonstrating disease of the kidneys. For this purpose they are, however, virtually superfluous. But to determine the degree of renal insufficiency they are imperfectly adapted since there is no exact parallelism between their secretion and that of normal metabolic products.

The tests with potassium iodide and lactose, introduced by Schlayer in Germany, gained special importance for some time. Schlayer's procedures were based chiefly on his experimental investigations, as a result of which he thought he could distinguish between tubular and vascular forms of nephritis, special types of the disease which had been set up by Aufrecht. A most important work in this respect has been carried out by Widal and his school. By a series of brilliant clinical researches he has enriched our knowledge of chloride and nitrogen retention, thus creating a systematization of nephritis resting on functional diagnosis, which should supersede the former anatomical division. Principally he differentiated the nephritides into those with chloremia and those with azotemia. To these types of nephritis he joined a third one with arterial hypertension and also described hybrid forms showing at the same time two or three of the functional disorders mentioned. The symptoms and the prognosis of these types were then subjected to a thoroughgoing investigation. In this way a functional conception of kidney disorders was reached, as was already the case in diseases of the stomach and heart.

An enormous amount of work has been performed during recent decades in all civilized countries further to develop the

methods for functional diagnosis of the kidneys. The attempt has been continued to arrive at an estimate of the functional capacity of the kidneys by loading tests. Besides trying to demonstrate insufficiency of the kidneys, its degree and different forms, the elaboration of purely functional pictures of disease has been continued.

In other fields of clinical medicine an effort has likewise been made to introduce the use of functional tests, as for instance, in the metabolic disorders. In a general survey of functional diagnosis by Rosenbach (1891) he laid much stress on this subject and raised the question how an incipient insufficiency in metabolic capacity can be recognized. Insufficiency may, in his opinion, be demonstrated partly by abnormal excretion of unassimilated substances, partly by abnormal deposits of fat. The degree of insufficiency is measured by fixing the limit of tolerance for the substance which has been administered. In accordance with this method the amount of carbohydrates tolerated by diabetic patients has long been measured by supplying varying amounts under the same external conditions. This method of measuring degrees of insufficiency has been developed especially by Naunyn and his disciples, and by F. M. Allen at the Rockefeller Institute. The latter has gone further in the same direction by determining the tolerance for carbohydrates in diabetic patients on a diet of pure carbohydrates and by ascertaining the relation of this tolerance to total assimilation. This method has not, however, revealed an association of insufficiency with any single organ; it is the assimilating power of the whole system which is measured, although knowledge has gradually been gained concerning the significance of several organs in the metabolism of sugar, such as pancreas, liver and endocrinal glands. In each separate instance, however, we are still ignorant in regard to which organ or what function we are actually testing.

This defect in knowledge is still clearer if we wish to determine the tolerance of

the system to given amounts or kinds of nourishment as determined by the larger or smaller deposition of fat. After it was discovered that the deposit of fat can to a great extent be regulated by the glands of internal secretion, such as the hypophysis and the sexual glands, the question has become exceedingly complicated and far removed from solution. The situation, as far as the glands of internal secretion are concerned, is that for the present only the grossly obvious results of their excessive or deficient action can be observed. Characteristic symptom-complexes such as myxedema, exophthalmic goiter and acromegaly resulting from glandular deficiency or overaction are known, but functional capacity of the glands cannot yet be accurately estimated by any known test. The same may in the main be said of the liver, of which only quite subordinate functions can be measured, such as its power of transforming the urobilins. But work in this direction is still being carried on and a great number of experiments are being made with the object of establishing criteria for functional diagnosis in the case of all these organs.

As a very important step in this direction must be reckoned the recent research on basal metabolism elaborated principally in the United States by Graham Lusk, Dubois, etc. The problem of basal metabolism was in the first instance taken up by the German physiologists of Voit's school, particularly Rubner, also by the clinicians, Fr. Müller and Magnus-Levy, who in 1893 and 1895 were the first to demonstrate alterations of the basal metabolism in thyroid affections. The elaboration of indirect calorimetric methods that may be applied at the bedside, has nowadays created a clinically useful functional test; this already has proved to be most important for studying thyroid disorders and as a control of the efficacy of their treatment as practiced to a great extent, e.g., at the Mayo clinic.

If we take a retrospective view of this important movement, it becomes clear that the programme pursued by physiological

medicine has consisted in ascertaining functional disorders of organs and employing these disorders as central points in the description of morbid pictures. The methods of experimental physiology have been adopted and employed in clinical research. It may, indeed, be said that with the introduction of functional diagnosis the experiment became the method of clinical examination. If with Claude Bernard we define the experiment as *une observation provoquée*, clinical medicine, by employing loading tests in functional diagnosis, entered into the world of experiment. Clinical medicine thus became more firmly wedded than ever to physiology, and its old love, pathological anatomy, was forced to recede into the background. But with this transformation in methods the importance of etiological factors became secondary and interest in specific disease declined. Functional deviation from the normal came to dominate diagnosis.

In other ways, too, functional diagnosis carried out the ideas of the older physiological medicine. Wunderlich had already proposed that the object of medicine was to diagnose and treat the disorders found in each separate case solely on the basis of the disturbances presented by the individual patient. It was his idea that a case should not be classed merely under a certain heading, placed in a certain fixed category of disease and then treated according to a prescription attached to this category. During Wunderlich's time, however, this programme of individual diagnosis and treatment could not be carried out, as all means of doing so were lacking. With the introduction of functional diagnosis, however, the required methods for diagnosis of transient functional disorders and their degree were provided. By examining the functional capacity of diseased organs and establishing the degree of their insufficiency, information as to the condition present could now be gained which observation of the subjective symptoms alone could give only imperfectly. In searching for means

to deal directly with these transient functional disorders, an individual therapy was developed, a therapy of far greater importance than the purely symptomatic, palliative therapy with which the old physiological school was obliged to be contented. These ideas one finds expressed over and over again by leading clinicians whose chief study was functional diagnosis.

How much more important Rosenbach considered it to ascertain the functional capacity of the heart than to examine the actual cardiac lesion in heart diseases has already been mentioned. The same thought was expressed more cautiously and lucidly by Romberg in his textbook on heart disease (1906):

We do not consider the mere placing of the disease in this or another column as the ultimate purpose of diagnosis. That is only the necessary premise. The more important thing is to determine to what degree each single patient is injured by his complaint, and what cause has produced the momentary disorder.

In the preface to a book by his two pupils, Kœvesi and Roth-Schultz, on insufficiency of the kidneys, v. Korányi says among other things:

A fruitful source for therapy springs from our knowledge of the changes taking place in the functions of diseased organs, and of the consequences and dangers to the whole system resulting from insufficiency of individual organs, as well as from our knowledge of the protective measures against insufficiency, or, if it is already present, from the measures suited to fighting and overcoming the consequences of insufficiency and of rendering it harmless. In the continued development of methods looking to these ends and in the art of applying correctly, weighing justly, and combining them wisely, we still have the most urgent of the problems which clinical research has to solve.

In one respect, however, functional diagnosis did not fulfill Rosenbach's expectations. It was his opinion that by its aid the functional disorders of an organ could be diagnosed at an early stage before any lasting anatomical changes had occurred.

He hoped that disease might be recognized in its incipient stages and that the morbid process would then be easily accessible to treatment. But this anticipation was realized in a few cases only. How a disturbance develops and to what degree it becomes accessible to treatment depends above all on its cause and is much less dependent on anatomical changes than Rosenbach seemed to think. Even gross anatomical changes may disappear by treatment if they are due, for instance, to syphilis, while even an early and slight functional disorder may be inaccessible to therapeutic influences if it is due to a progressive process such as cancer. It was the complete lack of consideration of the etiology of disease processes and of the fact that the inevitable course of the disease depends upon the etiology which led Rosenbach astray. Generally speaking, this was the weak point in the new physiological movement as it had been in the old. In spite of the enormous advances made in clinical medicine by employing functional diagnosis, the one-sidedness of the underlying principle has led clinical medicine wrong on some important points and has caused checks in progress and occasionally even retrogression.

This has been particularly conspicuous in the domain of gastric disease. This was the field in which functional diagnosis was first introduced, but it was also here that the reaction against purely physiological concepts first made itself felt. The movement is best illustrated by a consideration of the course of prevailing concepts regarding gastric ulcer during this period. What occurred shows the dangers of relying exclusively on functional diagnosis. Gastric ulcer was set up as a special morbid entity by the French pathological anatomist and clinician, Cruveilhier (about 1830). In the following decades it was further studied on the principles of the French school with observation of the characteristic symptoms, chiefly pain and the vomiting of blood, and investigation of the anatomical changes in

the stomach. The reader is reminded, at this point, how With in Copenhagen (1881) by faithfully observing the subjective and objective symptoms of patients and correlating them with the anatomical findings arrived at the opinion that gastric ulcer was a much more frequent and important disease than had hitherto been imagined.

When observation of functional behavior became more and more universally employed, and hyperacidity and hypersecretion were to be found associated with ulcer, it was v. d. Velden's first thought that in these abnormalities there had been found diagnostically important signs of ulcer. When, however, Riegel and others came to regard the increased secretion itself as a primary morbid process and to consider ulcer as its consequence, the characteristic symptoms of ulcer were gradually transferred to the newly established morbid picture, "hyperacidity"; gastralgia came to be regarded as a phase of the "hyperacidity trouble," and the clinical peculiarities of ulcer were lost sight of. Gastric ulcer was more and more rarely diagnosed, especially in German clinics, and was considered a possibility only when severe hemorrhage or strictures necessitated it. This movement spread to all countries so that, in effect, ulcer, from having been recognized frequently, came to be a comparatively rarely diagnosed disease.

The reaction came when ulcer began to be treated surgically. Abdominal surgery provided a new method of observing anatomical changes in organs which had previously been accessible to observation only at post-mortem examination. Now the old anatomico-clinical diagnosis was revived. It was the French internist, Soupault, who in 1901 in conjunction with Hartmann, the surgeon, made the important observation that hypersecretion (as described by Reichmann) and the other symptoms usually accompanying it—especially late pains, hunger pains—were always or virtually always due to chronic ulcer. This observation was quickly subscribed to by French

clinicians. Starting with this theory clinicians far and wide began to revise their views. The result was that functional disorders were dethroned from the position of primary morbid entities and reduced to their proper place as simple consequences of the important morbid processes which had long been known in gastric pathology. Clinical study in Denmark took an important part in this movement. Rubow, Alf. Madsen, Sk. Kemp, Faber and others showed exactly how the proper kind of study of secretory and motor disturbances might lead to the reconstruction of the nosography and diagnosis of ulcer, and might thus result in improvement in medical as well as in surgical therapy. In other countries a similar movement is on record. In England Moynihan, basing his views on experience gained in many operations, made a great sensation by contending that the condition which the English, following the German example, had called hyperacidity, was in reality a sign of chronic ulcer. Apparently the English had settled down comfortably to the diagnosis of hyperacidity and moreover were not overcritical about the importance of demonstrating its presence objectively in all cases by means of test-meals. Moynihan's vigorous representations, therefore, had all the more effect in the English-speaking world. He erred, no doubt, when he thought that the symptoms mentioned nearly always indicated the presence of ulcer in the duodenum rather than in the stomach (he was evidently ignorant of the work of the French school), but his strenuous work to promote the correct diagnosis of ulcer resulted in a far wider use of operative treatment than before, and through this, in greater knowledge of the disease and improvement in its diagnosis. Further progress in the knowledge concerning this condition resulted from the introduction of methods for investigation of the stomach by means of x-rays. This method subserved essentially the purposes of anatomical diagnosis; the shape of the stomach and the changes therein caused by

the ulcer were directly observed. Recently this method has obtained special importance in that it has in a way become possible to divide this disease into two subdivisions, pyloric ulcer and gastric ulcer proper, the two conditions differing symptomatically, anatomically and functionally.

It is interesting to see how in the investigation of certain organs, the *x*-ray, as a method of anatomical diagnosis, has attained an importance equal to that which the stethoscope enjoys in diseases of the lungs. Through the use of the *x*-ray knowledge concerning diseases of the stomach and of other abdominal organs has been increased, but, in addition, this method has also been the means of adding much information in an anatomical sense, concerning diseases of the heart, the vessels and the lungs.

So far as gastric ulcer is concerned we have now returned essentially to the viewpoint regarding this condition and to the clinical methods of investigation which were recommended by the Laënnec school. The result has been that ulcer of the stomach is once more properly recognized as a frequent and serious disease.

The recognition of the functional disturbance is now regarded merely as of assistance in diagnosis, just as the study of the subjective symptoms is of importance. Functional disorders as definite entities, however, have to a great extent lost their importance in gastric pathology, and functional diagnosis has, in the main, again become subordinate to anatomical diagnosis. The study of functional disturbance, however, has not been rendered superfluous. On the contrary, during this entire movement it has gained fresh and particular importance, but the hope of replacing anatomical by physiological categories of disease in this sphere has not been fulfilled. Functional diagnosis alone can only suffice in a very narrow field. For instance, the functional disturbance called *achylia gastrica* continues to form an important and well defined functional disorder. The concept is only of importance,

so far as prognosis and treatment are concerned, however, if it is known in each case whether the condition is due to cancer or to catarrhal or toxic gastritis.

In the domain of heart disease a similar movement can be demonstrated, but in neither direction has it run to extremes. Here it was early perceived that purely functional diagnoses would not suffice, though Rosenbach asserted that in a case of cardiac incompetence it did not matter to the patient what was the cause of disease; the treatment remained the same. It is true that the immediate therapy directed toward relieving heart failure is in all essentials the same in every case, but the general viewpoint regarding prognosis and development of the condition, and the problem of its etiologic or specific therapy is, as we know, utterly dependent on the question whether the failure is due to valvular disease, to some form of myocardial disease, or is associated with high blood-pressure due to sclerosis of the kidneys. This side of the matter, however, was frequently undervalued in the early days of functional diagnosis, and mistakes were committed similar to those which were mentioned in the case of gastric ulcer.

In the case of renal disease, functional diagnosis led, in the first place, to the demonstration and investigation of the details of renal insufficiency. But this was followed by a subdivision of the various forms of chronic nephritic disease depending upon the particular kinds of functional disorder that were present. For instance, a distinction was made between the form of nephritis in which the excretion of sodium chloride was obstructed and the form in which retention of nitrogen was the chief phenomenon; between the form with increased blood-pressure and that in which the blood-pressure remained normal. But as functional tests were applied more and more and the results correlated with anatomical findings and with the symptoms and course of the disease in patients, confusion, instead of clarity, resulted.

Extrarenal factors were found to play a greater part in the issue of functional tests than was at first imagined. For instance, it was gradually realized that the greatly reduced excretion of water and sodium chloride in patients with edema is not due to deficiency of the secretory power of the kidneys but is the result of a general disposition to edema, whether this be referred to the minute vessels of the tissues throughout the body, or to the tissues themselves.

Under these circumstances the very elaborate and numerous functional tests originally employed have lost some of their value and have, therefore, been simplified. Von Korányi's methods, involving the determination of freezing-point and conductivity, have now been abandoned in favor of a simple determination of specific gravity; the test for sodium chloride has lost a great deal of its importance; and the urea test has been rendered superfluous by the far more important determination of the residual nitrogen in the blood. There is left to us the old test of Korányi of the power of the kidneys to secrete concentrated and dilute urine; the test for variability, as it is systematized, for instance, in the Strauss test, and also this test employed in conjunction with the determination of the residual nitrogen.

While a more modest rôle has been assigned to functional diagnosis in its relation to kidney disease, than occurred in the case of its relation to diseases of the stomach, nevertheless the attempt has been made to build up a new nosography for chronic nephritic disease by correlating with the functional disturbances, the more minute anatomical changes, and the clinical course of the disease. Volhard and Fahr's great work "Die Brightsche Nierenkrankheit," in which precisely these classical clinical methods were applied, has been of real significance.

A clue to the modern trend of this subject will be found in a certain passage in the report of the leading German clinician, Fr. Müller, on Bright's disease, made at Meran

in 1905 before the German Pathological Society. Its argument is directed primarily against the old pathologico-anatomical school, but the effort is also made to assign functional diagnosis to its proper place.

In the study of a disease the highest aim cannot be confined to prognosticating at the bedside, with the greatest accuracy possible, the changes which may be found on the post-mortem table. It is more important to seek the causes of disease and to start its investigation with the view of ascertaining these. The notion of "morbific cause" has gradually suffered a certain displacement. Whereas in earlier days we were content to conceive the organic changes found at post-mortem examination as causes of the morbid symptoms observed in the living, nowadays we no longer regard these pathologico-anatomical changes in the organs as the ultimate and actual causes, but more as manifestations (*Erscheinungen*) of the diseases on a level with the symptoms observed *intra vitam*, and we seek to disclose the injurious potencies which have led to these organic changes as well as to the functional disorders connected with them.

The attempt to class and name the diseases according to their etiology and not according to their pathologico-anatomical base has not only proved beneficial in the field of infectious diseases but has *inter alia* given excellent results in the case of heart diseases. It will also be permissible to apply this principle of division to the nephritic diseases; this cannot, however, be carried out with any prospect of success unless it should prove that the nephritic diseases occurring after the various infections and intoxications show special characteristics.

In German clinical research much work has been done during the last decades from this point of view. The attempt to divide from the old clinical group of Bright's disease another series of morbid processes has been successful. The various forms of nephrosis, for example, which were previously combined, in the main, under the head of parenchymatous nephritis, have recently been regarded separately. Here, as everywhere in clinical medicine, it has become apparent that the dictum of Fr.

Müller holds good; corresponding to the various etiological entities, there are variations in the clinical manifestations, and the goal, which should be aimed at, is the establishment of sharply defined morbid pictures.

Whenever its intimate connection with clinical observation has been broken, medical science has been led astray again and again in the days of functional diagnosis as in the days of cellular pathology; both times the causes have been identical. In both instances the special objects of clinical research and the methods dependent upon these objects have no longer commanded respect. Formerly it was microscopic cellular anatomy which was allowed to dominate clinical observation, now it was physiological argument and investigations.

There is a signal difference between the physiological and the clinical study of functional disturbances. In physiology the study of the functions of the various organs is an end in itself. Life is comprehended as the sum of the various visceral and cellular functions. If the physiologist encounters changes in the functions of an organ, they enlist his interest chiefly because these functional disturbances teach him something of the general laws applying to the function, revealing to him aspects of activity which were hitherto unknown.

But in clinical medicine the study of disturbance in organs has a widely different import. The main object of the clinical study is first to find what has caused the disturbance in the normal life of the organism, and then to understand how the cause has given rise to that series of law-directed phenomena designated by the name of disease. While the physiologist works back to normal function from the observed disorder, the clinician is primarily in quest of the cause of the disorder; the functional disturbance is chiefly of interest to him as a means to this end. With regard to functional disturbances and possible anatomical changes the clinician is therefore specially concerned to know how the various changes tend to develop; he is interested in following

the course and issue of disease. Only through study along these lines can he succeed in describing morbid pictures of lasting value, morbid pictures which represent the total effects of definite injurious agents on the life of the organism. All the methods of clinical research tend more or less consciously towards this goal.

Functional diagnosis was introduced with the watchword "*Wir wollen heilen und nicht klassifizieren,*" but it has shared the fate of all other clinical methods; they all lead ultimately to new classifications, to the dissociation of non-homogeneous processes, and to the consolidation of homogeneous ones.

Indeed through the study of functional disturbance much greater progress has been made in nosography than occurred when pathological anatomy was the only guide. In the first place nosography has been enriched by the addition of the investigation of functions to pure symptomatology. Objective and measurable criteria have been provided which supplement and extend the information obtained through study of the subjective symptoms alone. By correlating functional disturbance with anatomical change it has been possible to advance along the lines indicated by the Paris school. How in the domain of gastric diseases functional diagnosis led to a fresh development in anatomical diagnosis has already been pointed out.

In the second place the investigation of function has greatly contributed to the development of methods for locating the seat of disease. As a rule the demonstration of a disturbance in function is accompanied by a demonstration of the organ which is involved. Through the study of function it is often possible to locate the seat of a disease when the ordinary objective examination does not reveal the anatomical foundation. Through functional investigation it is often possible not only to locate the disease in a definite organ, but also to put one's finger on the particular part of the organ, the particular cells or cellular complexes which have been attacked. Just

as this kind of precision has long been possible in the case of diseases of the nervous system, so has it also proved to be possible in certain forms of cardiac disease. For instance, certain affections can now be located in the conducting system of the heart. Indeed since electrocardiography has been employed, it has even become possible to locate the seat of a break in conduction in one or the other branches of the His-Tawara bundle. In the completely irregular pulse the seat of disturbance has been localized in the auricles. In the case of nephritic disease the effort has also been made, through functional investigation, to locate a given disorder in the glomeruli or in the tubules. Even if this attempt has not yet been successful, the way has at least been indicated. One of the aims of functional investigation is thus to arrive at a physiological cellular pathology, analogous to Virchow's anatomical cellular pathology.

Finally, through functional diagnosis, affections, functional disturbances, in organs or cells which never become the seat of anatomically demonstrable changes, can be demonstrated. Functional diagnosis has made possible the description of new morbid pictures as characteristic and independent as those established by means of pathological anatomy. As a matter of fact diabetes mellitus presents an old and classic example of a purely functional morbid entity. And indeed, in a large series of similar functional diseases, such as adipositas and other metabolic abnormalities, orthostatic albuminuria, habitual constipation, migraine, epilepsy and certain other nervous diseases, not to mention most mental diseases, significant anatomical changes have been looked for in vain. All these diseases are partly symptomatic; nevertheless, the endeavor should be made to find a basis for each of these in a morbid change in function underlying the symptoms. Instead of purely symptomatic pictures, pictures of characteristic functional diseases may result. In this way the causes of functional disturbances may ultimately be discovered.

In this connection it is interesting to note that in psychiatry the cause of the various psychoses is now sought in functional disturbances of the endocrine glands. It is further interesting to observe that the modern conception of the acid-base equilibrium of the blood, which is based largely upon the investigations of L. J. Henderson in America and of Hasselbalch in Denmark, is beginning to be applied to the pathology of nervous diseases, more especially to epilepsy and psychoses (Bisgaard and Jarloev in Copenhagen). It is now generally recognized that hope for the solution of the problems concerning functional abnormalities is principally centered in the application of biochemical and biophysical methods.

In the modern clinic, work in the laboratory is so intimately connected with purely clinical work that there can be no great progress without using methods derived from the experimental laboratories. This applies also to nosography. Of course, new diseases can still appear or be discovered in the same manner as occurred in earlier times, as has recently happened, for instance, in the case of trench fever and encephalitis lethargica, to mention two of the newest additions. The bacteriological clinic is still working out new clinical entities, such as *Leptospira icterohaemorrhagiae*, and is dividing old entities into new ones by subdividing bacteria into different types, as Cole and his associates have done in the case of pneumococcus causing pneumonia, and as others have done in the case of the bacteria causing dysentery and the meningococcus causing meningitis. Steady progress in transforming nosographical conceptions of morbid phenomena is, however, performed chiefly by clinical observation in connection with physiological investigation. For instance, the new and widely spread disease, hemolytic icterus, was not established as an entity until Chauffard in the clinical laboratory demonstrated the diminished osmotic resistance of the red blood corpuscles. The existence of the specific, very "innocent" form of chronic



glycosuria, renal diabetes, was only confirmed through a long series of analyses of the blood sugar. Progress in the clinical and etiological classification of certain blood diseases, such as purpura, can only be accomplished by exact counting of blood platelets.

The period of functional diagnosis, with its intensified study with physiological methods of research, has contributed greatly to breaking down the barriers which formerly existed between the experimental and the clinical branches of medicine. The old demand for the same scientific accuracy of method and reasoning in clinical research, as is required in the experimental institute, has now been universally recognized and appreciated. A basis has been established for continuous and fruitful interplay. From physiology, clinical medicine constantly receives new methods for investigating disturbances of function, and the clinic is

compelled to follow closely the evolution of these methods. Separation between experimental and clinical research is no longer possible; they are working closely together. A division of the work will, however, always be necessary because clinical research must derive its inspiration from the examination of patients. The manner in which clinical research is carried on in hospitals has been changed. Laboratories have become an increasingly dominating element in the medical clinics, but, whereas in the older physiological medicine they were chiefly used for experiments on animals, they have now proved indispensable in the more thorough-going examination of patients and in ascertaining the nature of the morbid changes in functions. Functional diagnosis has directed the footsteps of the clinician, who is interested in the methods and data of physiology, back to the bedside, where his true kingdom lies.

## VI

### CONSTITUTIONAL PATHOLOGY

The most recent movement in nosography belongs almost entirely to the twentieth century, and is directly associated with the influence which modern research on heredity has had on pathology.

It has long been admitted that heredity is an important factor in the genesis of many diseases, but until very recently this circumstance exerted little or no influence on the development of nosography. When the whole problem of morbid causes was shrouded in darkness, notions concerning the relation of heredity to disease were also extremely vague. In discussing the etiology of a disease, a number of factors were usually enumerated and among them, heredity was frequently mentioned. This factor was, in a manner, made coordinate with other injurious influences, such as underfeeding, chills, grief, overexertion, etc., and the relative importance of the hereditary factors in the etiology of different diseases was believed to be very variable. In one disease

it was thought to be of significance in only a few of the cases; in another disease it was believed to play a rôle in half the cases or even more. This point of view yielded nothing to nosography. The part which heredity played in any disease was not sufficiently definite that it could be considered a distinguishing characteristic and so employed in the differentiation and classification of the various diseases.

An enormous change has recently taken place in this state of affairs, however, first as a result of the development of newer doctrines concerning infections, and second, and to a much greater extent, as a result of the discovery of new biological laws concerning heredity.

As soon as the doctrine of infection had been generally accepted, the question of the inheritability of infectious diseases was quite naturally taken up for discussion and critical examination. Among the diseases which had always been considered most

markedly and plainly hereditary, were some of the most important chronic infectious diseases, namely, tuberculosis, syphilis and leprosy. With regard to these diseases it was very soon ascertained that the heredity here in question depended chiefly upon the direct or indirect transference of infection from parents to children after birth. This kind of heredity should, of course, be well distinguished from other kinds. In his "General Pathology" (1896) C. Lange, the Dane, gives a discussion of pathological heredity which is unusually lucid for the time at which it was written. In this treatise he employed the term "pseudoheredity," to designate the tendency in certain families to suffer from certain infectious diseases, which, as we have stated above, may be explained by transference of infection from parent to child; and he also included under this term the special tendency in certain families to the occurrence of certain other diseases, due to the exposure of the entire family to the same external circumstances playing a part in etiology. Finally he was inclined to include, under the same term, the examples of inheritance of disease which are dependent upon fetal or germinal transmission of the infectious agent. On the other hand, he limited the term "blastogenic" or true heredity to that form of heredity which is associated with organic defects in the generative cells of the parents. In accordance with these views Johannsen later made the distinction between false and true heredity which is current in biology.

The exclusion of all cases of false heredity brought greater clarity to the clinical doctrine of heredity, but of still greater clarifying effect was the development of the whole modern experimental doctrine of heredity with its biological laws of heredity. According to these laws single properties, and hence single abnormalities, delimited morbid phenomena, may be inherited quite independently of the other properties of the organism, and they may be coupled with one or several of these. Through the

doctrine of the distinction between dominant and recessive properties an explanation was afforded of the apparently quite capricious and desultory occurrence of certain morbid family peculiarities; through the doctrine of sex-limited inheritance a series of other obscure clinical observations were elucidated. Old observations on the significance of consanguinity, so-called atavism, etc., appeared in quite a new light and the question of the inheritance of morbid phenomena became keenly interesting.

As is well known, it was the experiments of the Austrian, G. Mendel, which about 1865 laid the foundation of the new movement in biology; but his experiments and his laws of heredity remained almost unknown until the laws were rediscovered and corroborated at the commencement of the new century. His observations were later supplemented by de Vries' doctrine of mutation, by Bateson's studies on the coupling and repulsion of hereditary factors, and by Johannsen's work on heredity in "pure lines." Of great importance, too, for the general subject of heredity, but especially, as will be seen, for heredity in medicine, is also Johannsen's introduction of the terms "genotype" and "phenotype."

The discovery of these new facts and laws concerning heredity soon led physicians to review the knowledge concerning so-called hereditary diseases in the hope of applying the new biological discoveries to the study of these conditions. A considerable number of diseases which have been shown to be hereditary are now well known. They include such conditions as hemophilia, which was described as a family complaint as early as 1784 by the American, Fordyce, and color blindness, Daltonism, which has been known to be a hereditary disease since the middle of the nineteenth century. In addition certain purely anatomical deformities, such as supernumerary fingers, have long been recognized as hereditary. It was soon found that these morbid phenomena resemble other biological hereditary phenomena and obey the same laws. These

diseases, therefore, are of a particular kind; they have a peculiar and characteristic etiology. It was now possible and justifiable to collect into a special nosographical group all these "heredito-familial" diseases.

We cannot wonder that the English clinicians were among the first to take up the question of these hereditary diseases for investigation and discussion. Since Darwin, the problem of heredity had been a burning question in English science and more recently Galton's well-known investigations and Bateson's book on "Mendel's Principles of Heredity," which was published in 1902, had again made it the subject of general discussion and enquiry. It is not surprising, therefore, that very soon Farabee and Drinkwater were studying finger deformities on Mendel's principles, Gowers, Mott, Savage and several others were investigating the part played by heredity in the field of nervous diseases, while the ophthalmologist, Nettleship, in his publications from 1905 to 1909, set forth the results of his studies concerning the manifold hereditary diseases of the eye.

Not only in England, however, but in all countries, much attention has been directed during the last decade towards finding real hereditary diseases, and as a result a large number of hereditary morbid abnormalities have been added to the fairly long list which had long been known. As soon as the search was undertaken by observant physicians, it became apparent that there existed a whole series of clinically well-defined and well-delimited entities of disease which were only waiting to receive the stamp of a specific etiology in order to take their place as specific diseases. By the clinical nosographical method it had been possible to combine certain groups of cases exhibiting a typical symptomatology and course. This indicated a specific etiology for the group, which was now found to be heredity. For instance, the gifted clinician, Duchenne de Boulogne, as early as 1856 had described, as a special clinical type, infantile muscu-

lar dystrophy with pseudohypertrophy, in which heredity apparently played a great part. This has long been regarded as a definite and well-characterized disease clinically, but it is only now, since it has been demonstrated that the essential etiological factor is heredity, that we are justified in considering it a definite morbid entity. At present it is regarded as a particularly well-pronounced example of the familio-hereditary diseases.

Moreover, it became apparent that it was important to observe and investigate the hereditary occurrence of various morbid phenomena and the occurrence and course of the associated symptoms, since by this method it became possible to set up one hereditary disease after another. As an excellent example may be mentioned the important study of myoclonus-epilepsy made by Lundborg, a Swede. The characteristic symptom-complex of this disease had already been described (Unverricht, 1891), but only through Lundborg's comprehensive investigations on the occurrence of the disease in a certain family in a province of Sweden was it ascertained that the disease was a specific hereditary disease, following the Mendelian laws, and occurring more particularly as a recessive character.

In the work of establishing or creating new types of hereditary disease, anatomical as well as functional diagnosis is required, since hereditary diseases of a purely anatomical kind occur as well as those of a purely functional kind, and in addition those of a combined kind.

While as late as 1908 long discussions could still be held in the English Royal Medical Society as to whether the hereditary diseases follow Mendel's laws or not, we can now make up a long list of diseases which undoubtedly follow these laws in their occurrence. As a rule they are dependent upon a dominant factor in one of the parents. In 1917 the German, Dresel, was able to make up a list of 30 hereditary diseases where this had been demonstrated by the analysis of statistics from a large

number of cases. On the other hand, he only found certain documentary evidence of a disease as a recessive property in the case of 6 diseases. For 4 diseases sex-limited inheritance has been demonstrated beyond a doubt.

If we take a single organ such as the eye, the number of hereditary diseases known is strikingly great. There occur diseases that are inherited as dominant properties, others as recessive properties, and still others as properties limited to sex, and there are purely functionally hereditary diseases, as well as anatomically hereditary diseases.<sup>2</sup>

That such a comparatively large number of the known hereditary diseases are diseases of the eye is probably due to several reasons. The eye is more accessible to close investigation than any other organ, and every deviation in structure, however slight, is more apparent here than in any other organ, just as every functional anomaly of the eye may be easily demonstrated. As already remarked, the hereditary diseases of this organ are very often of a purely functional nature without any demonstrable anatomical changes. In these instances the disease is characterized only by certain typical functional abnormalities. Nevertheless, these functional disturbances have been demonstrated to have a specific etiology, that is, heredity, and it is justifiable, therefore, to consider them entities of disease.

It is probable that as functional diagnosis gradually joins hands with research on heredity, an increasing number of similar hereditary functional diseases in other organs will be discovered. For instance, there are many only partially recognized ab-

<sup>2</sup>Dresel gives the following ophthalmic diseases which are inherited as dominant factors in the ratio of 1 to 1: irideremia, congenital cataract, juvenile cataract, simple hemeralopia, coloboma nervi optici, myopia hereditary ophthalmoplegia, distichiasis; as a recessive property, primarily inherited retinitis pigmentosa, likewise, probably, total color blindness, etc.; as a sex-limited property, inherited Daltonism and hemeralopia combined with myopia.

normalities of the nervous system which may be true disease entities of this character. In the case of the kidneys, diabetes insipidus is such a disease, and recent investigations concerning renal glycosuria, an entirely benignant form of diabetes, indicates that this condition is just such an hereditary disturbance of the secretory function of the kidneys. In many cases an inherited functional disturbance gradually leads to well-pronounced anatomical changes, such as, for instance, occur in the case of hemolytic icterus, investigated in Denmark by Meulengracht. In these fields there is still much work to be done and much new land to be conquered through clinical research. As Nettleship says in his Bowman Lecture of 1909: "There is still virgin ground where the tasks of excavating, collecting and recording may be safely undertaken by those who enjoy them."

The general significance which the investigation of hereditary morbid phenomena bears to clinical nosography is very clearly stated by the Hungarian neurologist, Jendrassik, in his contribution to Lewandowsky's great work on nervous diseases (1912), and his views therefore deserve to be quoted:

Only with difficulty has the etiological point of view gained acceptance in practical medicine; it was only the obvious conditions as regards many infectious diseases that caused the conception of diseases as etiologically distinct entities to be generally employed as a guide in internal medicine. With even greater difficulty did this view gain admittance in neurology, while psychiatry has had the greatest difficulty in adapting itself to the new ideas.

The principle of the etiological specificity of disease implies that every disease entity is produced by a quite particular cause, that different diseases cannot arise from the same cause, nor can different causes produce the same disease. We now conceive of each of the pathological processes as a single, gradually developing phenomenon resulting from the action of the specific etiologic agent, though with variations depending on individual circumstances or external conditions. Symptom-complexes cannot pass for diseases.

On this view the diseases must mainly be divided into two large groups, the first of which comprises the exogenous affections, while the second group contains the endogenous affections, i.e., such whose cause is some defect in the formation or developing power of the single parts of the organism. The cause of these latter defects can only be an inherited one, as external causes have been excluded.

Such a division of all the diseases into two main groups is very attractive and clear, and has been very generally adopted. Nevertheless, on closer consideration, it is evident that the attempt to apply this classification to every disease involves certain difficulties which are very fundamental in character. For instance, the term "endogenous" has been applied to various affections produced by a morbid state of the endocrine glands, such as obesity or dwarfism associated with disease of the hypophysis. Now it is well recognized that the alterations in the hypophysis may be produced by an entirely exogenous tumor, perhaps even by trauma. This obstacle might without difficulty be overcome by making an exception of these cases and grouping them apart from the really endogenous affections. A more serious difficulty, however, consists in the fact that it is very often difficult or impossible to draw the line between endogenous and exogenous affections. For instance, the common form of shortsightedness develops, according to the current view, chiefly as a result of habitual close work with the eyes, such as reading too constantly or under unfavorable conditions. The condition, however, does not develop with equal facility in all persons; heredity has a great and easily demonstrable influence on its occurrence. Epilepsy is a distinctly hereditary disease, but it may also be caused by a blow on the head or a lesion of the brain. In individuals who are predisposed through heredity, however, trauma or meningitis will more easily produce epilepsy than it will in others. In view of these facts, are nearsightedness and epilepsy endogenous or exogenous diseases?

According to Johannsen's doctrine all disease, all abnormalities must be conceived as parts of the phenotype, and the latter arises through an interplay of the genotype and the external conditions. In some cases of hereditary disease the external circumstances seem to play quite a subordinate part; they follow an iron law of nature, occur with fully law-directed regularity in accordance with the Mendelian laws of heredity and seem entirely independent of external influences. The genotype is entirely predominant. In other words, the "usual" circumstances, in the widest sense,—those under which man is born and grows up, in conjunction with the genotype, make the disease appear, make it part of the phenotype. In other cases certain circumstances, certain external influences, must be present before the disease can appear. The genotype in these cases appears to be merely a predisposition to disease, sometimes a predisposition to certain definite diseases. In this way the problems concerning the inheritance of disease and those relating to predisposition to disease are brought into close touch, and it cannot be a matter for wonder, therefore, that in modern medicine these two problems are dealt with collectively. Together with the subject of general constitutional anomalies they form the theme of *constitutional pathology* which has recently attracted great attention, more especially in Germany. This subject in several respects has an important bearing on clinical medicine, chiefly on account of its relation to the latest phase of nosography.

As a matter of fact, modern constitutional pathology first appeared as a reaction against etiologico-clinical research and the nosography which was founded upon it. In the study of the infectious diseases especially, the etiological point of view had come to be of exclusive interest. But now certain questions arose. What is a cause? Is it justifiable to say that a disease has one cause? Has not disease, like all other phenomena of this world, not only one, but many causes, and is it not more correct to

say that the morbid phenomena in each separate case appear as a result of a series of conditions? Indeed, ought we not give up speaking about "causes" in pathology, as we have done in the other physical sciences and be content with speaking of conditions?

These questions began to arise in the minds of scientists very soon after bacteriological investigation had revealed the "actual cause" in a series of important diseases. The first fact which tended to disprove the simple statement that a microbe is the cause of a given disease, was furnished by Pasteur himself. In 1880 he demonstrated in the mouth of a perfectly healthy child a pathogenic microbe, a diplococcus. Later this same organism, pneumococcus, was shown to be the cause of typical inflammation of the lungs, and also of certain forms of brain fever, of heart disease, etc.

It soon became apparent that an analogous situation existed in relation to the etiological agents of certain other infectious diseases. Loeffler found the diphtheria bacillus in the mouth of a healthy individual at the same time that he discovered it on the mucous membranes of diphtheria cases. Cholera and typhoid bacilli were often found to be present in perfectly healthy individuals; the mere presence of tubercle bacilli in the body was not alone sufficient to produce phthisis. Gradually the existence of healthy, but infection-transmitting bacillus-carriers became universally recognized, and it became generally acknowledged that a pathogenic microbe alone was not sufficient to cause a disease. The presence of the organism is a necessary condition, but the organism alone is not the sole cause. The individual must be susceptible to infection and this, again, involves two circumstances. A momentary, local susceptibility due to a wound, a chill, a weakening of the tissues or the like, must be present. But besides this accidental cause or condition, there must also be a general susceptibility, a predisposition. The want of this

general susceptibility is what may be called immunity, and it is due above all to the genius of Pasteur that pathology at once devoted itself to this problem in the hope of securing protection for the race against the infectious diseases.

But simultaneously with the development of this interest in immunity there developed an interest in the opposite condition, namely, the predisposition to disease. Attention was directed especially to infectious diseases such as tuberculosis, which attack only a relatively small number of individuals, though the sources of infection are widely diffused. This modern interest in the general predisposition, in the constitution of the organism, expressed itself in the form of direct opposition to the doctrine of specific diseases and specific morbid causes. This is illustrated in an interesting way by a lecture delivered by the German hygienist, Hueppe, at the meeting of Natural Scientists at Nuremberg in 1893: "Über die Ursachen der Gährungen und Infektionskrankheiten und deren Beziehungen zum Kausalproblem und zur Energetik."

In this lecture Hueppe, like the physiological clinicians of the middle of the nineteenth century, raises his voice against Sydenham's conception of the diseases as species, against this *von Zeit zur Zeit aufgewärmten Rest der Ontologie*, but he also opposes the Pasteur-Koch view that micro-parasites may be regarded as the "cause" of fermentation and of infectious diseases, may even be looked upon as "specific" causes. Contrasted with this very simple point of view he postulates the following:

The decisive cause of disease and fermentation lies in the structure and disposition of the infected host and in the structure and constitution of the fermentable matter. Only the internal constitution can quantitatively and qualitatively contain everything that appears following the action of the external influence, which thus acts as a release of existing, apparently latent, potential, internal energy.

To illustrate his conception of the manner

in which the universally accepted morbid causes induce disease, that is, act as agents which release the latent energy of the organism, he adduces certain examples often used in philosophy, such as the action of the spark which fires the powder. In this case, the cause of the explosion must be sought in the latent energy of the chemical substances concerned. He also mentions the avalanche which is caused to move and fall by some slight accident, such as the flight of a bird, the sound of a voice, or the like. The spark, the sound, etc., are the releasing agents, but the display of energy which takes place is due to the latent, potential energy present. For such potential energy to be released by some external cause, various conditions must be present, and the same phenomena are only released when the same conditions are present. As regards disease, unless proper conditions are present, the specific microbes and cells cease to react specifically.

Therefore, viewed from the only standpoint which is scientifically justifiable, the ontological conception of specific morbid causes and specific infectious diseases is just as untenable as it is superfluous. The nature of specificity is not involved in the specific character of the morbid causes, but resides rather in the uniformity of the external conditions, and no properties in the bacterium are more easily affected than the specific properties themselves.

This being the case, Hueppe cannot any longer look upon specific morbid species, specific cells, and specific microbes as fit subjects for scientific consideration, but he admits that the ontological view may possess certain advantages for beginners. "Like the personifications of the religions, these entities offer certain advantages as transition stages for untrained reasoning, but from a purely scientific point of view they are unacceptable."

On the other hand, he emphasizes the importance of morbid disposition and predisposition. Just as the various sugars have a different chemical constitution and therefore differ in fermentative capacity, so the

various families, species and races, as also persons of various ages, members of different professions, etc., are variously predisposed to disease.

How in the presence of such facts anybody can deny the importance of a morbid predisposition as a cause and the inheritance of a morbid constitution, is quite incomprehensible to me, and is only conceivable in a person who has not surveyed the subject scientifically, and because he is still held by the fetters of ontology which do not permit him to view the objects in their various aspects.

It was perhaps necessary to raise a warning against the exclusive study of the growth of pathogenic microbes as it was being carried on by Koch and his followers. As already remarked, the school of Pasteur had devoted itself with the greatest interest to the question of immunity and predisposition. The relation of *le microbe* to *le terrain* was a constant subject of research by this school. Trousseau even touched upon this question of individual susceptibility in his early prophetic prognostications concerning the results which were likely to follow Pasteur's investigations.

The stress laid by Hueppe on disposition to disease has been fully justified by later experience, but his opposition to specific morbid causes and specific diseases was, to use one of his own expressions, "as untenable as it was superfluous." Nevertheless, in the succeeding years, he gained followers in Germany who adopted his opinions on both of these points, chiefly Martius, but also Gottstein, Hansemann and Verworn, and the discussion concerning these philosophical problems raised by Hueppe has been kept alive by these men. The exact nature of this discussion is evident from the titles of some of the papers and pamphlets which have appeared: Verworn, "Kausale und konditionelle Weltanschauung" (1912); Hansemann, "Über das konditionelle Denken in der Medizin und seine Bedeutung für die Praxis" (1912); Martius, "Das Kausalproblem in der Medizin" (1914).

This discussion has been continued up to the present, though recently Lubarsch in concluding a paper entitled "Ursachenforschung, Ursachenbegriff und Bedingungslehre" (*Deutsche med. Wchnschr.*, January, 1919) expresses the hope that in the future, scientists will devote their energies to solving individual scientific problems instead of discussing the complex problem of causality.

It does not seem likely, however, that this will end the discussion. There are indeed some phases of this problem which should still be discussed, for certain concepts which are concerned are used in different places in widely differing senses and important terms are given widely separated definitions. This is especially the case with the terms "constitution" and "constitutional disease."

The term "constitution" has been employed in medicine since the days of the ancients, and at first was used in a very comprehensive and vague manner. For instance, Hippocrates spoke of the constitution of the individual, the people and the country as well as of the constitution of the seasons, the atmosphere and the prevailing diseases. But gradually the term came to be employed chiefly in two connections. Writers began to speak of the "epidemic constitution." This conception of constitution was chiefly evolved by Sydenham and was a further development of Hippocrates' theories concerning the influence of seasons and the weather on the occurrence of diseases.

The other sense in which the term was employed was in relation to the individual, the constitution of the individual, a good or bad constitution, a strong or weak constitution, etc.

This double sense of the word is well illustrated by its use in certain articles by de Montègre, published in 1813, in the well known "Dictionnaire des Sciences Médicales." He mentions here two kinds of constitutional diseases. The diseases of one kind are produced by the meteorological

constitution; these are the acute and epidemic diseases. Those of the other variety are dependent upon the bodily constitution of the individual attacked. These diseases as a rule are hereditary, but in the great majority of diseases the bodily constitution is of importance. The athletic constitution, for instance, predisposes to acute inflammations, etc. As examples of typical constitutional diseases he mentions phthisis and apoplexy.

In the middle of the century, however, a constitutional disease began to be regarded as synonymous with a general affection which attacked the whole organism, in contradistinction to a local affection. Thus Wunderlich in his "Handbuch der Pathologie und Therapie" (1846-54) devotes a special section to constitutional diseases, and in this class he places the "autogenetic constitutional diseases" (such as anemia, hemorrhagic diathesis, metabolic diseases, gout, diabetes, edema, etc.), and also the intoxications and all the acute and chronic infectious diseases. Syphilis begins as a local infection but becomes "constitutional" when the whole system is infected.

This new conception of constitutional diseases was very soon universally adopted. The doctrine of the epidemic constitution had gradually faded into insignificance and at last almost entirely disappeared. Also the doctrine of the individual bodily constitution receded more and more. On the other hand, the rapid development of anatomical local diagnosis rendered it more and more necessary to provide a category of constitutional diseases under which could be grouped those diseases which could not possibly be regarded as the manifestations of a purely localized condition, and such a group is found in all the textbooks dating from the latter half of the century. Thus Jaccoud, in his "Traité de Pathologie Interne," dating from 1869-71, places the following diseases in the class "Dystrophies constitutionnelles": Chlorosis, leukemia, scorbutus and purpura, scrofula, Addison's disease and diabetes.



Niemeyer made almost the same grouping in his textbook, and as late as 1902 we find Strümpell calling these affections of the blood and of the metabolism, constitutional diseases.

As already remarked, however, the renewed interest in the problem of predisposition as well as the modern research on heredity caused "constitution" again to be discussed in its old sense as relating to purely personal properties. The general interest in constitutional pathology in this sense has been aroused chiefly by the two German clinicians, Martius and Kraus. Many clinical concepts and facts have been reviewed from this point of view and this has resulted in many additions to clinical knowledge.

If we were to attempt to define or explain the term "constitution" in a way answering to modern views, we should have to call it the nature of the body, including under this all inherent qualities, such as the anatomical structure of the body, its morphological composition, as well as the functioning properties of the separate organs and cells. A constitutional anomaly is, in consequence, a divergence from the normal in build or functional capacity of the organism, either in its entirety or in its separate parts.

No one knows better than the physician that human beings are not "born alike," but already at birth differ in "constitution," both as regards build and organic functions. As is generally recognized, there is no hard and fast line between the normal and the abnormal, but medically speaking one would be inclined to demand a certain unfitness, a lowering of the efficiency of the individual or organ concerned in order to speak of a constitutional anomaly, a constitutional disease.

Such constitutional anomalies are often due to hereditary disposition, but they may also be acquired, before or after birth. In both cases they are characterized by morbid changes, as a rule permanent, in the nature of the body.

Hitherto, it has proved very difficult to decide where to draw the line concerning constitutional anomalies, and the leading authors in this field, such as Martius, Kraus, Tandler and others, are by no means agreed on this point.

There exists little difference of opinion concerning certain purely local anomalies, either the anatomical ones, such as congenital deformities, or the functional ones, such as color blindness and other analogous affections of individual organs. But the liveliest discussion has arisen in regard to the more general constitutional anomalies which also are characterized both by anatomical and functional disturbances and demand for their recognition methods for both anatomical and functional diagnosis.

The first step towards the anatomical diagnosis of these conditions was made by Bencke in 1878. He made an extensive series of measurements of the size of the various organs post mortem, and by comparing these measurements he sought to obtain a method for estimating their degree of functional power. This attempt, however, did not lead to any practical results.

The study of status thymico-lymphaticus, described by Paltauf in 1889, led to results of greater importance in this connection. By anatomical studies of this condition the persistence of the thymus gland and hyperplasia of the lymphatic tissues was demonstrated. It was proved that these anatomical conditions predispose to sudden death under circumstances where this would otherwise not have been expected. Special studies of importance in this connection have consisted in the investigation of the variations in bodily habitus of different individuals. The study was inaugurated by the Frenchman, Tuffier (1894) and especially by the Austrian, Stiller (1896). As one of the results of this study, the latter described what he called the asthenic constitutional disease. This method of study has been further developed by Kraus and his disciples at the Charité in Berlin. Kraus and his disciples have sought to

establish what Kraus calls "an anthropological clinic" in which the methods of anthropology have been employed in measuring and investigating the build of various individuals and in investigating deviations from the normal. Interest has centered chiefly in the too narrowly built chest, which according to these investigators is the chief cause of a series of alterations in the thoracic and abdominal organs, or at any rate, is their constant concomitant. For instance, this type of chest is said to be accompanied by a deficient development of the heart and the great vessels, and is frequently associated with a long vertically placed stomach (gastroptosis), a high and narrow liver, movable kidneys, etc. These organic deformities are further said to involve a great liability to functional disturbance in the organs concerned. Narrow-chested men with a comparatively small heart have not been able to stand the almost superhuman strain of the world war, but have contracted cardiac incompetence under circumstances where strongly built men have not been affected. Individuals suffering from gastroptosis are said to be predisposed to all sorts of dyspepsia and to atony of the stomach. The nervous system of these individuals is believed to be particularly susceptible to harmful agencies so that they are easily exhausted, in brief, that these individuals are neurasthenic.

What unites the various morbid states and symptoms in this instance is the habitus of the patient, the narrow chest, i.e., an anatomical factor, but the chief interest in this study lies in the fact that it reveals or renders probable a functional weakening, a reduction of power, of the misplaced or deformed organs.

In another series of general constitutional anomalies, on the other hand, characteristic functional disturbances alone are present. This is the case in what has been called diathesis; uric acid diathesis, for instance.

In all these general constitutional affections the important fact is that the

functional powers of the individual, or of his various organs, are reduced. In the face of any task, insufficiency of the organs will occur more quickly than in normal individuals. The chief importance of these conditions for the individual, and indirectly for the physician, lies, therefore, in their concomitant states, in the fact that they predispose to other diseases. We may say, with Martius, that they denote a premorbid phase. While, through the functional diagnostic methods of Rosenbach, it was attempted to diagnose a morbid state at its inception, it is the aim of constitutional pathology to determine in any individual the disease which may, with probability, be expected to develop.

There is, however, as has recently been pointed out by Siemens, an essential difference between a predisposition to disease and a constitutional anomaly. The latter is a more autonomic concept. It involves a reduction in the power to resist external injurious influences and so predisposes to disease, but so do other conditions which have nothing to do with constitutional anomalies. Typhoid fever, for instance, predisposes to decubitus, diabetes predisposes to furunculosis and to tuberculosis of the lungs, but both typhoid fever and diabetes are well-marked clinical concepts, unrelated to constitutional diseases. However, the various constitutional anomalies are also clinical concepts, clinical entities arrived at like other clinical concepts, by means of anatomical or functional diagnosis. They differ, however, from other diseases, by being stable, permanent deviations from the normal; they are not pathological abnormalities existing only for a period of limited duration, they remain with the individual throughout life.

And now the question naturally suggests itself, In what relation do all these constitutional anomalies stand to heredity and to the above-mentioned hereditary diseases? In reality, all hereditary diseases must be considered as constitutional anomalies. It has even been attempted (by Tandler,

Bauer and several others) to restrict the designation "constitutional affection" exclusively to hereditary affections, and to designate as "conditional" all other diseases which do not originate in the germ cells. This attempt, however, meets with many difficulties. A constitutional anomaly, a constitutional disease, in the modern sense, may readily arise, and very often has arisen after birth under the influence of certain external conditions without having been, as it were, "predetermined" in the germ cells. This, for instance, seems to be the rule in the case of certain of the anomalies of development, such as the narrow chest. As a matter of fact, the constitutional anomalies as well as the predispositions and immunities may be either inherited or acquired.

This whole chapter of clinical medicine, however, is still in a state of evolution and consequently is still somewhat obscure and confused. Nevertheless, owing to the interest which has been aroused in this subject, many new points of view have been developed, and new methods for estimating the state of health and power of resistance to injurious influences of each separate individual have been devised. In its relation to the subject of nosography this movement has a special interest; in the first place, because it has already enriched nosography with a new series of morbid categories and pictures and gives promise of still further additions, and in the second place, because it has brought to our consciousness the relativity of our nosographical concepts and the difficulties of a sharply delimited classification of diseases. It has thus brought support for the views of the many authors who have maintained throughout the century the artificiality of every fixed classification of diseases.

Every morbid phenomenon, according to constitutional pathology, is the result of an injurious morbid factor in conjunction with a susceptibility of the organism. This susceptibility is most closely associated with the whole constitution of the individ-

ual, his anatomical and physiological nature. The latter, again, is influenced partly by hereditary predisposition, partly by the conditions under which the organism has developed. Hence the ultimate phenomenon is so complex that in each case of disease it can only be understood by an analytical study of all the factors concerned. Not only must the morbid cause be investigated, but also the inherited as well as the acquired constitution of the patient, as it is exhibited in his habitus of body and in the functional capacity of each separate organ.

In one case the external morbid cause is the entirely dominating factor, as for instance in the influenza which attacks everybody; in another instance, it is the internal morbid cause which governs the etiology, as in the absolutely hereditary bleeding disease, and in still other cases, an indefinable mixture of endogenous and exogenous causes is operative. How then is it possible to maintain as the goal to which we should aspire the classification of all morbid phenomena on the basis of etiology? This, as we know, was the goal we had previously set ourselves in nosography.

No guide to the solution of this problem is found in the concepts of phenotype and genotype. All morbid phenomena are components of a phenotype and they are all ultimately a result of the effect of external conditions on the inherent qualities.

As a guide we must determine the cause which specially characterizes the course of a given disease and regard this as the chief cause and employ it as a basis of classification. The morbid phenomena of a case of pneumonia, or of a case of tuberculosis of the lung, are primarily characterized by the special microbe which is present, no matter whether the patient be much or little predisposed to the disease by his constitution. On the other hand, the characterizing feature of a case of myoclonus-epilepsy, or of night-blindness, or of Friedreich's tabes, is its hereditary character, even though external conditions may possibly hasten or

sometimes perhaps even prevent the appearance of the disease. The cause which in each case gives the disease its clinical character and determines the development and course of the symptoms is then also the one which we should call the actual cause of the disease.

We must, however, once more emphasize that all concepts of disease, like all other concepts denoting species, are human abstractions, not objective entities. Philosophically speaking, everything is fluent; but to the physician who is to live and act in the world, it is necessary to have definite categories of disease to serve as guides and tools.

#### FINAL REMARKS

On surveying in retrospect the evolution of nosography over the period here dealt with, it is not difficult to gain a comprehensive view of its various phases. For centuries physicians were restricted to the direct observation of symptoms. This only led to the description of some conspicuous symptoms and symptom-complexes. Ingenious observers now and then established clinical pictures of more lasting value, but all scientific method of classification was lacking. Sydenham, past-master in the art of observation, soon felt the need of some method by which to describe the diseases. As we have seen, he discovered such a method applicable to a limited field through the study of the seasonal occurrence of the epidemics. With this exception it was exclusively by the study of the regular combination of symptoms and by the observations of the course of the symptoms that he and the succeeding clinicians had to proceed.

Then, pathological anatomy stepped in with physical diagnosis established on Laënnec's stethoscopy, and this movement dominated the first half of the nineteenth century. Next, physiology gradually developed with the study of function, and growing out of this, functional diagnosis became a new basis for nosography. But both the anatomi-

cal and the physiological methods of research became effective only when they were applied in conjunction with, and under the guidance of, direct clinical observation of the characteristic development and course of the diseases. Only then were they able to advance nosography as it was desired.

Much surer and more striking progress in the delimitation and description of diseases was attained through the application of bacteriological methods. Through the latter the very essence of the disease was revealed, and it became apparent that the classification of morbid phenomena, their grouping in species and genera, which at all times had been attempted, was in reality analogous to referring definite physical phenomena to definite causes. It was only when this had been recognized and this train of reasoning with all its resulting demands and tendencies adopted, that clinical research—diagnosis, anatomical and functional—was supplied with a unity of aim. Only then did concerted efforts with various methods succeed in supplying a solid foundation for the further development of nosography. This point of view has also been of assistance in the application of the knowledge concerning heredity to medical nosology.

Of course, the purely anatomical clinical pictures, such as pleurisy, spinal tumor, etc., will always retain their full value, as likewise those which are purely functional, such as hemiplegia, gastric achylia, auricular fibrillation; but only when we have penetrated to the underlying causes, and described the etiological entities of disease, will the goal of nosography have been reached.

The attempt to "describe the diseases" borrowed from descriptive natural history has been found to be inseparably bound up with the quest for the causes of the morbid phenomena. Clinical medicine is, therefore, at work, like the other natural sciences, but following its own particular methods, at the great task of attempting to understand natural phenomena in order to be able to control them.

The nosographical method of research is, above all, analytical. Analysis of data obtained by mere observation of patients, however, no longer suffices. The clinic aims at the most profound analysis of the morbid phenomena that is possible, with all available methods of examination—physical, chemical, physiological and morphological, and in addition, it employs the clinical experiment in order to measure the degree of functional disorder by means of functional tests. It does not stop short at this, however, but goes on to construct by synthesis, clinical pictures of individual diseases subject to fixed laws in their course and development. Speaking figuratively, these clinical pictures of disease may very well be called species, but, as already remarked, they really denote a delimited group of natural phenomena produced by some definite cause.

Every time any important advance is made in this field it is considered in the clinic to be a great feat, and the description of a new disease is of extremely great importance in practical medicine. To the physiologist and the worker in the laboratory, morbid categories are subordinate concepts, but to the physician, to the clinician, the reverse is the case; he cannot live, cannot speak, cannot act without them.

The ultimate aim of the clinic is not, of course, the development of nosology, the naming of a morbid condition, or the referring of an example to a given category. Classification of disease will always be changing and will never be fixed until we know all the various factors which are concerned in producing the morbid phenomena, the external causes as well as the

inherited or acquired constitution, and understand how they interact with each other. The final aim of medicine is to acquire a knowledge concerning etiology and concerning the consequent development of the morbid process so as to be able to adopt the right line of action. Nosography is one of the means to this end; it is one of the working methods employed by the clinic for the recognition and understanding of the phenomena and their relations. As we have seen, it has proved a very fruitful working method up to our own day, and the greatest names in clinical medicine are found among its followers.

The important advances in this field, however, are only exceptionally due to any one man; as a rule, a great number of clinical observers from the various centers of study share in the revelation of new knowledge, and even general practitioners often make important contributions. Experience shows, however, that where the greatest progress is being made in theoretical medicine, there, also, are clinical discoveries most easily made. This serves as additional evidence indicating the intimate connection between the several branches of medical science. Every significant advance in our understanding of pathological processes and functional disturbances will always serve as a strong impulse to the clinic; and we have endeavored to show to how great an extent this is illustrated by the history of nosography. On the other hand, the clinic is a kind of touchstone for testing the value of new theoretical discoveries. The deeper the new views go, the more surely will they set their mark on the clinic, and especially on nosography and classification.

## CASPAR WISTAR, JUNIOR<sup>1</sup>

By WILLIAM SHAINLINE MIDDLETON, M.D.

MADISON, WIS.

**E**ARLY in the Thirty Years' War the Electorate Palatine was overrun by the victorious hordes of Wallenstein in their irresistible sweep to the Baltic Sea. Scarcely less harassing than the heavy heel of the conqueror were the successive friendly occupations of her territory by the armed forces of the crafty Richelieu and his unnatural ally, Gustavus Adolphus of Sweden. However by tradition, Tilly is accused of the ravage of Hilsbach, Baden, from whence arose the Wistars of Philadelphia. The original church was destroyed at that time and with it probably invaluable genealogical data on the Wistar family. However, the venerable Förster Haus, ancestral home of the Wistars, was spared.

The most remote common ancestor of the Wisters and Wistars of whom accurate information is obtainable, was Johannes Caspar Wistar, the great-grandfather of Caspar Wistar, Junior. Johannes Wistar was born in Hilsbach, a village near Heidelberg, in the Electorate Palatine (now the Grand Duchy of Baden) on April 15, 1671. Under the Electors he held the hereditary title and position of *Förster*. It is significant that the old Lutheran church records of Wald Hilsbach refer to him as Herr Hans, although he was not of the nobility. Undoubtedly duties and responsibility beyond those of the ordinary *Förster* had devolved upon him, and the title bears witness to the respect in which he was held. Careful research has revealed no

<sup>1</sup> Read before the Medical History Seminar, University of Wisconsin, December 14, 1921.

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individuals of this name in Baden other than the four children of Johannes, who in turn emigrated to America. This complete eradication of the Wistar family in Baden through the transplantation of one root lends strength to the belief that the Palatine branch of the family was itself an offshoot from the main trunk in Austria or Silesia. It is assumed that as court attendants to one of the Rudolphs the forbears of Johannes Wistar had come to the Electorate Palatine from one of the Austrian provinces. The coat of arms of the Austrian Wisters would indicate great antiquity; but among the present bearers of the name in Austria there is neither knowledge of the period of the family's rank among the nobility, their ancestral seat nor the historic events leading to their loss of station.

Four of eight children, Caspar, Catharine, John and Ann Barbara, survived the father, Johannes Caspar, who died in Hilsbach on January 13, 1727. The eldest son, Caspar, was born on February 3, 1696, in the ancient Förster Haus at Wald Hilsbach. Contrary to the custom Caspar renounced his patrimony in favor of his sisters and like many other Mennonites availed himself of William Penn's invitation to settle in America. Tradition recounts that he landed in Philadelphia, September 16, 1717, with a pistareen in his pocket and a beautifully mounted fowling piece on his shoulder. This firearm still remains in the possession of the Wistar family. Of the other children of Johannes Wistar it need only be added that John and Catharine followed Caspar to America on the death of their father. From the genealogic standpoint it is interesting to note that all American Wistars are derived from Caspar, whereas the American Wisters arise from John who retained the original spelling. The

special act of the Provincial Assembly of May 9, 1724, naturalizing Caspar Wistar, initiated the error in spelling, to which that branch of the family has since subscribed.

Caspar Wistar prospered in Philadelphia as a manufacturer of buttons and the *Weekly Mercury* of 1726 ranks him as one of the principal merchants of the city. His business acumen led him to petition the Assembly on April 27, 1724, to enable German born subjects to trade to better advantage. Certain of his real estate purchases, still in the family, constitute some of the most valuable property in Philadelphia. In 1726 he married Catharine Jansen at Germantown, Pennsylvania. His wife was of German derivation. This union was blessed with seven children. The eldest of these was Richard, who was born in 1727, and was the father of Caspar Wistar, Junior.

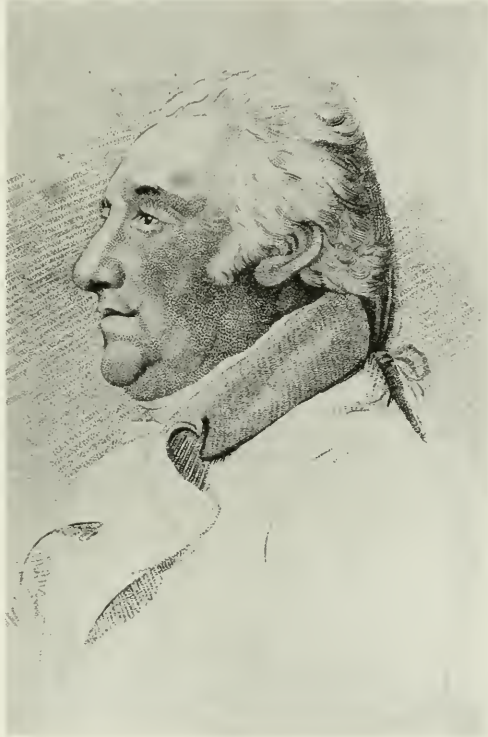
Richard Wistar was associated with his father in the operation of a glass factory in Salem, New Jersey. This project was the first of its kind in the Colonies. Richard Wistar was distinguished for his integrity, industry and benevolence. In 1751 he married Sarah Wyatt, whose father, Bartholomew, an English Quaker, settled in Salem County, New Jersey, shortly after the arrival of William Penn. Although their business interests were in New Jersey, the Wistars maintained their residence in Philadelphia.

To them was born a son, Caspar, Junior, on September 13, 1761. Surrounded by the best educational advantages that the New World and the affluence of his parents could provide, this son developed a strong linguistic ability. He attended the Friends'

School which, at that time, afforded the best classical education in the Colonies. His master, John Thompson, had gained wide prominence as a teacher of Greek and Latin; and Wistar's facility in these languages was notable through his life. He was also fluent in French and German. His social proclivities early contrasted with the more serious devotional attitude of his younger brother, Thomas.

The political and military turmoil of that day must have been most diverting to the attention of even this Quaker schoolboy. The Continental Congress

held its sessions in Carpenter's Hall, almost within ear range of the Friends' Classical School. The nearby State House Yard (Independence Square) was used as a recruiting place during the Revolution. Troop movements were, undoubtedly, commonplace to this lad, as were also the maneuvers on the drill grounds at the Common. He doubtless heard the Declaration of Independence read and later felt the depression which assailed the patriots on the defeat at the Brandywine. However, it remained for the horrors of battle to cast the decisive die in determining young Wistar's career.



CASPAR WISTAR, M. D.

On October 4, 1777, Washington engaged the British in battle at Germantown and in the course of this affray the wounded were cared for in the Wistar home. Watson, for example, recounts that the British General Agnew, who was shot from ambush by Hans P. Boyer, was borne to the "Wister" house to die. He apologetically adds that Boyer was not an enlisted soldier, and that he died in the poor house some time later. The harrowing experiences of this day led Caspar Wistar to choose medicine as a profession. A logical application of his humanitarian religious creed lay in this field.

Wistar without delay placed himself under the able guidance of Dr. John Redman, distinguished as the preceptor of Morgan, Rush, Coxe and other medical men of prominence. He also studied under Dr. John Jones, who came to Philadelphia on the British occupation of New York. Unusual zeal and industry marked Wistar's efforts in medicine from the beginning. In 1779 Wistar entered the Medical Department of the College of Philadelphia and for three years sat under Morgan, Shippen, Kuhn, Rush, and Bond. The period of his medical education witnessed the division of the medical school through the establishment of the University of the State of Pennsylvania by Legislature in 1779. His serious application won the approbation of his instructors, and he completed the prescribed course in three years. Two of his examiners for the degree of bachelor of medicine were adherents of different schools; one of Boerhaave, the other, Cullen. However, he acquitted himself very creditably to both and was granted his bachelorhood by the University in 1782.

Following the example of many leading American physicians of that period, Wistar sought a more comprehensive medical foundation by pursuing his studies abroad. The Medical School at Philadelphia was literally an offspring of Edinburgh, and it was but natural that his steps should turn to the mother school. On the high authority

of his grand-nephew, General Isaac Jones Wistar, another cause for a temporary foreign residence may be ascribed. General Wistar states that in 1782 Caspar Wistar



THE WISTER COAT OF ARMS.

was involved as a principal in a celebrated duel. Unfortunately the name of his adversary and the cause for this affair of honor are omitted. Obviously the precepts of his church and the public sentiment of the community would have been rather hostile to his continued residence in Philadelphia. In 1783 he sailed for Bristol, England, on the packet, "Mildred."

Wistar spent the first year abroad in London; but the climate proving unhealthy he betook himself to Edinburgh. For the next two years he enjoyed the medical and social life of that great center of learning to the utmost. Here he fell under the spell of the master, Cullen; and that the teacher reciprocated the attention of the student may be gathered from the following letter.

Edinburgh, 6th. January, 1786.

I make all my pupils welcome to put questions to me, though I am pleased that many of them do not, because many of their questions might be frivolous and foolish, but I assure you



that your questions have never been such, and they are particularly agreeable, as they always give me some information and often new facts that lead to speculation, that I can never have enough of whilst I have any time to spare.

I have exhausted my paper and every moment in my time to persuade you that I am,

Most sincerely yours &c,  
WILLIAM CULLEN.

Wistar was active in the proceedings of the scientific societies of Edinburgh. For two terms he served as president of the Royal Medical Society. Furthermore, he was active in initiating a "Society for the Further Investigation of Natural History," over which he also presided. In the proceedings of these organizations his ability as a debater attracted considerable attention. In Edinburgh, Wistar lived at various times in the homes of Dr. Erskine, Dr. Charles Stewart and the elder Professor Duncan. He was universally held in high esteem. His graduation thesis "De animo demisso," which he defended in 1786, was dedicated to Benjamin Franklin and William Cullen. He was granted the doctorate in medicine by Edinburgh.

David Hosack states that Wistar attended Leyden as well as Edinburgh and London; but corroboration for this statement is wanting. Wistar returned to New York in January, 1787. His academic and medical preparation had been superb. Furthermore, the conditions of practice in Philadelphia, aside from the unfortunate division of the medical school, were most propitious and stimulating. Benjamin Rush with his brilliancy dominated Philadelphia medicine, and a host of medical lights, Kuhn, Shippen, Hutchinson, Griffiths and others ably supported him.

The family connections of Caspar Wistar afforded him ease of entrée into the social and professional life of the city, which still outranked New York in wealth, commerce and population. Furthermore, he applied himself assiduously to practice. The interest of his preceptor, Dr. John Jones, facilitated his introduction as a surgeon in Philadel-

phia. Tradition states that Dr. Jones invited Wistar to witness an important operation. Arriving at their destination, Jones turned the knife over to Wistar, stating that the latter's sight was better. By contrast with Philip Syng Physick, the Father of American Surgery, Wistar did not occupy a preeminent position in this field. Caldwell states that his unsteadiness of hand and uncertainty of nerve precluded the highest success as a surgeon. However, his gentleness, care and caution in manipulation won him a large surgical clientele.

In medicine his success was more widely acknowledged. Abbé Correa de Serra records: "He was scrupulously attentive in examination into the nature of disease, and gentle and kind in the treatment of his patients. It was his object to assist Nature. Hazardous experiments did not enter into his plan of healing." On the other hand, Charles Caldwell, in a particularly carping passage, attributes Wistar's minute and repeated examinations to mental indecision and maladroitness. He further criticizes Wistar's lengthy prescriptions on the same grounds. He adds that these self-same evidences of weakness enhanced Wistar's reputation for cautiousness, sagacity and judgment.



WISTAR INSTITUTE, PHILADELPHIA.

In spite of assured income from several sources Caspar Wistar never hoarded money. His medical fees were never exorbitant but extremely low. He was loath to

charge any fee whatever to his numerous kinsmen and under no circumstance would he accept money from even the most wealthy of his female connections. Their responses in gifts of plate, china or valuable books were anonymous to prevent the doctor's returning them. A characteristic story is told of his generosity toward patients:

A convalescent Negro presented himself to Dr. Wistar, who inquired, "How much money have you brought with you?" "Ten dollars, master, and I wish you to accept it, till I get more." The doctor, taking from his pocket a ten dollar note, placed it in the hand of his patient, saying, "There, my man, now you have twenty dollars—go home, and make a good use of them: and let me hear from you again, should you, in any way, need my assistance.

Once when seriously ill, Wistar impertuned his sister to destroy all of his account books so that no patient might suffer in event of his death.

Caspar Wistar was one of the heroic physicians who remained in Philadelphia through the yellow fever pestilence of 1793. He himself contracted the disease at that time. A significant entry appears on the Minutes of the Board of Managers of the Pennsylvania Hospital under the date of September 30, 1793:

An attempt to hold a meeting to consider the cases of two patients in the house requiring immediate consideration of the Physicians, and Dr. Hutchinson being dead and Doctors Shippen, Kuhn and Foulke in the country, the Drs. Rush and Park, who are the only two Physicians of the house, who have remained in the city, are requested to give their attendance as soon as possible, to hold a consultation thereon; in which Dr. Wistar is requested as a favour, to assist them.

The connection with Pennsylvania Hospital thus established was maintained in the capacity of visiting physician until May, 1810, when the Board of Managers reluctantly accepted Wistar's resignation. They wrote that his action was "unexpected and very much regretted by the

Managers, who would gladly have embraced an opportunity of giving to a long-trying, experienced and faithful practitioner a further proof of their confidence in his skill and abilities, by re-electing him to the office he had filled more than sixteen years with great reputation, had he not prevented them by declining to serve any longer."

In 1809 a society for the promotion of vaccination was instituted by Wistar. Under the direction of this organization 11,000 individuals were vaccinated. The quasi-medical Humane Society for the resuscitation of drowned persons numbered Wistar as one of its physicians. The quaintly lithographed certificates of the Society are treasured relics of that period. One curious notice protested against the misuse of the grappling irons. (Addendum 11.) Wistar was made a junior fellow of the College of Physicians of Philadelphia at their first election, April 3, 1787, or three months after its foundation. His signature to its constitution was probably added later. He was active in the proceedings of the College throughout his medical career and from 1793 until his death served as one of the censors. Before this society he delivered the eulogy on William Shippen in 1809. In 1785 while in Philadelphia delivering a course of lectures on natural philosophy, Dr. Henry Moyes suggested to Dr. Griffiths and his uncle, Samuel Powel, the need of a free dispensary. As a result of his advice the Philadelphia Dispensary, the first of its kind in America, was organized and formally opened in temporary quarters in Strawberry Alley on April 12, 1786. Its first staff included Samuel P. Griffiths, James Hall, William Clarkson, John Morris, John Carson and Caspar Wistar, while the consulting physicians were John Jones, William Shippen, Adam Kuhn and Benjamin Rush.

As previously intimated the division of the medical school by the action of Legislature in establishing the University of the State of Pennsylvania in 1779 had greatly handicapped medical education in Philadelphia. This disruption of the College of

Philadelphia was a direct outgrowth of the suspicion under which this institution was held by reason of its origin, support and influence under the Proprietors and crown. This anomalous circumstance of two schools from a single faculty obtained on Wistar's return to Philadelphia.

In 1789 Wistar was elected to the chair of chemistry in the Medical School of the College of Philadelphia to succeed Benjamin Rush. This position coupled with his trusteeship in the College, made him an important figure in the union of the two institutions to form the University of Pennsylvania in 1792. The strength of the united faculty assured Pennsylvania of an unrivalled supremacy in American medicine for many years to come. Caspar Wistar was made adjunct professor of anatomy, surgery and midwifery to William Shippen in the new faculty. Adam Kuhn occupied the chair of the theory and practice of medicine, while the institutes and clinical medicine were under Benjamin Rush. James Hutchinson, an early martyr in the yellow fever epidemic (1793), was professor of chemistry; Samuel P. Griffiths, of materia medica and pharmacy; and Benjamin Smith Barton, of botany and natural history. On Shippen's death in 1808, Wistar succeeded to the vacancy. However, for many years previous the burden of teaching had fallen on the latter's shoulders. The professorial settee which had been in turn occupied by Shippen and Wistar, was twice divided after the death of the former to accommodate rising men in special fields. Thus Philip Syng Physick, whose independent lectures on surgery had attracted many University students, was in 1809 made professor of surgery. In 1810 Wistar made overtures for the establishment of a separate chair of obstetrics; but not until the death of Rush in 1813 was this end accomplished through the appointment of Thomas C. James to the professorship of obstetrics.

In scholarship, even in his early days of teaching, Caspar Wistar was superior to

any of his confreres on the medical faculty. However, at this period his sensitive, overwrought nervous constitution militated against the highest success as a teacher. By sheer force of will and close application his difficulty in public address was overcome; and in the opinion of even the ungenerous Caldwell, he became "one of the most fluent, self-possessed, and instructive lecturers our country has produced," and not to appear too laudatory, he adds, "not, however, one of the ablest." In time the sound judgment and clear logic of Wistar's lectures rivalled the eloquence of Rush as a drawing card to the medical school. Hosack states that his lectures were marked by "fluency of utterance, unaffected ease and simplicity of manner, perspicuity of expression, animation and earnestness." Serious in his contact with students, Wistar held his responsibilities as a teacher much in the light of "an accredited minister of a holy service"; and yet his gracious, cheerful ease of manner and uniform courtesy invited the intimacy of students. Their thoughtless pranks were viewed by him with regret rather than resentment. His home was one of their favorite retreats. Wistar held lofty ideals for the medical profession and his examinations were conducted with such standards in mind. He attempted to exclude all unqualified men; but his questions were preeminently fair. He communicated the unwelcome news of failure with invariable tact and kindness. As his reputation and classes grew, Wistar never relaxed his preparations for or attention to his lectures. To facilitate his teaching of the large classes he had enormous models of the anatomic parts accurately reproduced in wood by William Rush, famed as a carver of figure-heads for the sailing craft of that day. Open to conviction Wistar freely admitted his errors, as is witnessed by the following episode related by Charles Caldwell. Wistar had been in the habit of explaining the "migration" of edema by gravity along fascial planes (cellular membrane). Thus he accounted for the puffiness

of the face in the morning on rising and the disappearance of this condition during the day with subsequent swelling of the ankles toward evening. In defending his graduation thesis Caldwell advanced the theory of capillary debility and postural congestion as a more logical explanation of this clinical phenomenon; whereupon Wistar magnanimously acknowledged his error and always thereafter corrected it in his lectures.

"A System of Anatomy" by Caspar Wistar in two volumes made its appearance in 1811. It was the first American textbook on the subject. Aside from this "System" the rather scanty contributions of Wistar to scientific literature are to be found in the Transactions of the American Philosophical Society. Here are recorded six reports. Two of these are descriptions of fossil remains and indicate a comprehensive grasp of the subject. Indeed all matters of paleontologic or chemical nature before the Society were referred to him. Two other articles describe certain interesting yet elementary experiments on the physical phenomenon of evaporation. In these studies he attempted to separate the types of evaporation at varying temperatures, the "insensible diminution" when water is exposed to air of its own temperature, the "visible vapour or smoke" proportionate in amount to the elevation of temperature above a certain point, and lastly the "small transparent globules of elastic vapour which ascend through water" on heating to 212° and on escape into the cooler air "are converted from transparent elastic vapour, into visible inelastic vapour or smoke." He adds, "The formation and passage of these bubbles through water, produces the motion in it which we call boiling." In the Proceedings of the Society for August 21, 1789, Caspar Wistar was granted permission to place a rain gauge on Philosophical Hall. No subsequent report on his observations is recorded. The remaining two reports are on medical subjects. "An Account of a Case of Disease, in which one side of the Thorax was at rest, while the other performed the motions of

Respiration in the usual way," was read in December, 1814, before the Philosophical Society. The patient was thought to have suffered from a primary intercostal paralysis; but post-mortem examination revealed a pyothorax. The frank discussion of his error in this case, which was probably tuberculous, is praiseworthy. The paper discussing his "Observations on those Processes of the Ethmoid Bone which originally form Sphenoid Sinuses," presented before the Society on November 4, 1814, is of special historic interest and deserves detailed consideration.

In his "System of Anatomy" (1811), Wistar had thus described certain bony processes of the ethmoid:

From the posterior part of the cribriform plate, where it is in contact with the lesser wings of the sphenoidal bone, these plates of bone pass down upon the anterior surface of the body of the os sphenoides, one on each side of the azygos process, and often diminish the opening into the sphenoidal cells. These plates are sometimes triangular in form, their bases uniting with the cribriform plate. They have been described very differently by different authors, some considering them as belonging to the os ethmoides, and others to the sphenoid bone.

In the collection of bones in the University of Pennsylvania, there is an ethmoid bone, taken from the head of a subject rather more than two years old, which was remarkable for the perfect state in which the bones separated from each other. To this ethmoid bone there are attached two triangular pyramids, in place of the triangular bones; these pyramids are hollow, the azygos process of the os sphenoides is received between them; one side of each pyramid applies to each side of the azygos process, another side applies to the anterior surface of the body of the sphenoid bone, in place of the ossa triangularia, and the third side is the upper part of one of the posterior nares. There are two apertures in each of these pyramids; one at the base opening directly into the nose near the situation of the opening of the sphenoidal sinuses, in the bones of adults; and the other in each of the sides in contact with the azygos process.

This preparation was submitted to von Soemmerring, who wrote:

The neat specimen of the sphenoid and ethmoid bones, is an invaluable addition to my anatomical collection, having never seen them myself, in such a perfect state. I shall now be very attentive to examine these processes of the ethmoid bone in children of two years of age, being fully persuaded Mr. Bertin had never met with them of such a considerable size, nor of such peculiar structure.

Obviously, further study had led Wistar to revise his conclusion; for in 1814 after a complete description of these triangular pyramids which are now known as the cornua sphenoidalia (bones of Bertin—Addendum 111), he concludes:

Upon comparing these perfect specimens of the Ethmoid and Sphenoid Bones of the subject about two years of age, with the Os Sphenoides of a young subject who was more advanced in years, it appears probable, that the azygos process and the sides of the Pyramid applied to it, are so changed, in the progress of life, that they simply constitute the septum between the Sinuses; that the External Side of the Pyramid is also done away, and that the Front Side and Basis of the Pyramid only remain; constituting the Cornets Sphénoïdaux of M. Bertin.

If this be really the case, the origin of the Sphenoidal Sinuses is very intelligible.

Piersol states that early in life the cornua sphenoidalia may be attached to the ethmoid bone. So Wistar's apparent error is readily explained. Whereas the usual statement that he first described a process of the ethmoid bone, is erroneous, credit should be granted him for the earliest account of the development of the sphenoid sinuses.

Close as was his application to medicine, Wistar's interests were diversified. For example he succeeded Benjamin Rush as president of the Society for the Abolition of Slavery on the latter's death. In politics he was an active Democrat in opposition to practically all of his relatives and friends who were Federalists. However, his distaste for public attention and the press of profes-

sional duties outweighed the demands of party and led him to refuse the Democratic nomination for Congress. His most active affiliation outside of medical circles was with The American Philosophical Society.

This Society was formed in 1769 by the union of the original American Philosophical Society and the Junto. The reputation for scholarship among its members and for the stimulation of scientific thought and interest in the community were noteworthy and incited the envy of the self-sufficient John Adams, who wrote to his wife:

Particular gentlemen here, who have improved upon their education by travel, shine; but, in general, old Massachusetts outshines her younger sisters. Still in several particulars they have more wit than we. They have societies, the Philosophical Society, particularly, which excites a scientific emulation, and propagates their fame. If ever I get through this scene of politics and war . . . a philosophical society shall be established at Boston, if I have wit and address enough to accomplish it, some time or other.

The old home of the Society erected in 1785 still stands in the shadow of Independence Hall. A home-like air pervades its meeting room and library. The comfortable chairs and old stoves invite repose and quiet contemplation, while its dusty tomes recall the shades of Franklin, Rittenhouse, Jefferson and a score of other worthies who have graced its membership. Wistar in addition to his active participation in the scientific proceedings of the Society, urged the collection of materials relating to American history, while the time was ripe. His keen interest in this project frequently protracted the committee meetings until the early morning hours when they would discover that unwittingly time had passed in the absorption of his stimulating conversation. From the curatorship in 1793-4, Wistar was elected to the vice-presidency of the Society on January 2, 1795. David Rittenhouse, the learned astronomer, was then president. Thomas Jefferson succeeded Rittenhouse in this office. When he in turn

resigned because of his inability to attend the meetings in Philadelphia, Caspar Wistar was elected to fill the vacancy on January 6, 1815. The following letter of April 16, 1813, to Nicholas Biddle bespeaks the charming informality of this organization through its mouthpiece, Caspar Wistar:

Two of your friends have led you into a scrape—they proposed you as a member of the Philosophical Society and you were elected last evening.

The Society takes into consideration the situation of your family and therefore for the present year will only require you to discover the means of producing perpetual motion—but by the birth of your second child, they expect you to produce the Philosopher's Stone.

In 1799 the Wistars moved from High Street near Fourth to the substantial Shippen residence at Fourth and Prune (now Locust) Streets. Mrs. Shippen was a Lee of Virginia and the Shippen home had already become the rallying place for Southerners visiting Philadelphia. Its proximity to the American Philosophical Society and the unobtrusive hospitality of the Wistars soon made it a rendezvous not only for members of that Society but for a wide circle of other friends as well. Because of the Doctor's professional duties, Sunday evening was usually the most free from interruptions. So on this evening a group of the best intellects in Philadelphia foregathered for social intercourse at the Wistar home. The table was rarely spread and the fare was composed of tea, coffee, wine and cake. Wistar had a remarkable talent for conversation. Self-effacing, he possessed the ability to draw people out on their particular subjects of study or vocational pursuit. From the humblest student, unusually at ease through the gracious tact of his host, Wistar would elicit information, if only as to the climate and topography of his native state. These Sunday evening gatherings became famous. Travellers from abroad and men distinguished in their special fields of endeavor visiting Philadelphia were invariably invited to sup at the Wistars on

Sunday evening, and to the Doctor's friends messages as the following went forth:

Dear Sir:

Baron Humbold (sic) has returned from Washington and engaged to spend the evening with us. If you are disengaged I will be very happy to see you, and am with great esteem,

Your friend and servant,  
C. WISTAR, Junior.

Thursday

June 21st., 1804.

These evenings were veritable intellectual feasts. Here mingled on an equal footing heretic and high churchman, scientist and trader, philosopher and statesman. The brilliant bar of Philadelphia and the unrivalled medical faculty of Pennsylvania contributed regular callers. Among the most distinguished guests, regular in attendance, was Abbé Correa de Serra, Portuguese Minister and wit, who on September 27, 1813, wrote to Wistar from Boston:

The best thing I can do after what has happened since we parted, is to go back to my dear Philadelphia, and pass my time in the enjoyment of company such as yours. . . . There is no necessity, nor there will be soon very likely, of my going to Europe, and looking on the globe, I find no spot except Paris is more to my taste than your friendly city, and you must take to yourself a good part of its fitness to my taste.

In 1811 the meeting time was changed from Sunday to Saturday evening and raisins, almonds, fruits and ice-cream were added to the fare. Later years brought the addition of sea foods. There was an average of twenty-five regular callers, who were privileged to bring as many guests as they wished. Invitations were issued from October to March or April.

The intimate association of these kindred spirits fortunately did not pass away with its instigator. Indeed, within a month after Wistar's death, John Vaughan, Secretary of The Philosophical Society, wrote to Thomas Jefferson of their intention to continue the meeting, even though "we shall want the attractive magnet," he

added. Thus the Wistar parties came into existence. The Civil War interrupted these feasts of good fellowship in 1864. Several abortive attempts to renew these meetings failed until 1886, when by the efforts of two surviving members they were reestablished. In 1835 when the Parties were again held in the old Wistar home, recently purchased by Job R. Tyson, a copper plate was engraved, embellished only by the quaint queued profile of their patron. From this plate are still struck the invitations to the Wistar Parties. With a few deviations the simplicity of fare and entertainment has been maintained. (Addendum iv.) William Makepeace Thackeray, himself once a guest of the association, wrote on the death of the British Consul, William Peter: "There will be no more Whister parties for him. Will Whister himself, hospitable, pigtailed shade, welcome him to Hades? and will they sit down—No, stand up, to a ghostly supper, devouring the *ιφθιμους ψυχας* (the mighty souls) of oysters and all sorts of birds?" The original plan of entertaining distinguished visitors, while more difficult in this day, is still observed. Hampton L. Carson, a learned jurist of Pennsylvania, in an address on the centenary of the Wistar Party (1918) remarked that it was—

A purely voluntary association of twenty-four gentlemen, without a charter, without a club house, without even a club-room or club possessions, but held together by the mysterious and potent charm of a distinguished name, and a fixed rule that eligibility to membership requires an existing membership in the American Philosophical Society. With no purpose save that of genial hospitality to citizen and stranger, depending for expression upon purely private household entertainment, extended in turn by a single host, subject to the simplest rules, the association has exerted a quiet but definite influence upon the intellectual and social life of Philadelphia. It has become an institution without being an institute.

To return to the subject of this sketch, the portraits and pen pictures of Casper Wistar give him an expression of unusual

amiability and benevolence. He was of medium height and heavy, muscular build. His large head was well poised on a thick neck. His nose was aquiline; complexion, ruddy; and eyes, hazel. In person, Wistar was extremely neat. His approach was courtly and reserved; his manners, excellent. He was notoriously unpunctual, well warranting Caldwell's characterization "often out of breath and forever out of time." But a kindlier commentary in assigning a cause for his tardiness states that his courtesy and ease of approach invited frequent interruptions and informal consultations at every turn. In debate he assiduously avoided acrimony. Of him it was said he preserved his friends without sacrificing his opinions. In controversy with his fellows he practiced the philosophy of Marcus Aurelius—"The house is smoky, and I quit it." In his presence the gossipier and the scandal-monger were stilled by the familiar quotation:

Who steals my purse, steals trash; 'tis something,  
nothing;

'Twas mine, 'tis his, and has been slave to thousands;  
But he that filches from me my good name,  
Robs me of that which which not enriches him,  
And makes me poor indeed.

His religious devotion was as unostentatious as his life. He was of the Quaker faith. A two-volume Bible, the gift of Dr. Charles Stewart of Edinburgh, accompanied him on all of his journeys. In his youth he enjoyed Pope, Cowper, Milton and Burns; but in his later years he eschewed poetry and fiction as wasters of time. A book was his constant companion. In his carriage between calls, Wistar invariably read. His correspondence affords an insight into the range of his information as well as his acquaintanceship. He communicated by letter with Humboldt and Soemmerring in Germany; Camper in Holland; Michaud in France; Sylvester in Switzerland; Dr. Pole and Dr. Thomas C. Hope in Great Britain; Thomas Jefferson, Correa de Serra and Warren in America. His was a clear rather than rapid perception, a strong rather than

brilliant understanding in the opinion of his contemporaries.

Caspar Wistar was twice married. His first wife was Isabella Marshall, daughter of Christopher Marshall, whose famous diary of Revolutionary days in Pennsylvania is highly prized. She died in 1790, two years after their marriage, leaving no children. In December, 1798, Wistar married Elizabeth Millin, niece of Governor Millin. By her he had many children, three of whom survived him. However, none of these three children left issue.

During the last few years of his life, Caspar Wistar apparently suffered marked anginoid attacks attended by cardiac arrhythmia and partial decompensation. So serious were certain of these attacks that hydrothorax resulted in them. On January 14, 1818, he was seized with a high fever; and when the severity of his illness became known, his physicians were forced to issue bulletins of his condition twice daily to satisfy the anxious throngs which crowded about the Wistar home. He died Thursday, January 22, apparently from a malignant endocarditis, although an ossification between the aortic cusps alone was described. All University exercises were suspended until after his funeral; and his medical students, to whom his thoughts reverted to the end, requested the honor of bearing him to his last resting place. Members of the Philosophical Society and the medical faculty marched in a body from the Hall of the Philosophical Society to the Wistar home, three squares distant, but "the crowd that formed his funeral procession might be almost pronounced the population of Philadelphia."

The universal sorrow was expressed in the contemporaneous lament of Dr. George Bensell, of Germantown:

Wistar is dead! his gentle spirit's flown,  
In blessed trust, to happier worlds unknown;  
And many an aching heart and tearful eye  
Give the sad proof, the best of men must die.  
The good, the wise, the multitude deplore,  
The virtues that they loved are now no more.

Thou, who from others oft the stroke did stay,  
While Death hung o'er his seeming destin'd prey,  
Fate turn'd aside, and oh! could no one save  
And rescue thee, like others, from the grave!  
Alas! could no one of the Healing Art  
Save from the tomb, that good, that generous heart.  
While genius, learning, wisdom, bow the head  
And deeply mourn their favorite, Wistar, dead.

The life and works of Caspar Wistar have been immortalized in the Wistar Institute of Anatomy of the University of Pennsylvania. This institution was established on the foundation of Wistar's private museum. On his death Mrs. Wistar addressed the following letter:

To the Trustees of the University of Pennsylvania:

The family of Dr. Wistar wish to present the Anatomical Museum to the Trustees of the University for the use of the Medical School with which Dr. Wistar was so intimately connected and in the prosperity of which he took such great interest; at the same time expressing the sincere desire that it may still continue as heretofore to increase and flourish.

To the existing inadequate collection of dried preparations of arteries and veins, Wistar had added a series of wax corrosion models. In 1812 his museum had been materially augmented by some excellent preparations of lymphatics from the school of Mascagni. Finally the wooden models by William Rush formed a distinctive part of the original collection. However, the usefulness and scope of work of the Institute were greatly increased by munificent gifts from Wistar's picturesque great-nephew, General Isaac J. Wistar. The present home of the Institute was dedicated in 1892.

The best known memorial to Caspar Wistar is the *Wistaria speciosa*. Family tradition credits Abbé Correa de Serra with the distinction of naming this familiar vine; but it was named by the botanist Nuttall, who wrote it "*Wisteria*." Its unobtrusive grace, beauty of foliage and flower, its subtle fragrance are a fitting tribute to that great and gentle anatomist who died with these words on his lips,

"I wish well to all mankind."



*Addendum I.* In explanation of the development of the crest.

WISSTER. Argent, a pelican in its piety proper. A crest coronet ducal.

WISSTER. Per pale dexter or, sinister lozengy argent and sable, a bar or. On a knight's helmet open faced with necklace, three lozenges in pale the upper and lower or, centre purple, between the wings erect, dexter or sinister sable.

WISTER. Per pale dexter argent, on a bend azure two mullets of six points argent, sinister lozengy argent and sable, a bar or. Out of a crest coronet or, on a knight's helmet full faced with necklace, a demi eagle wings displayed sable, in its mouth a spray of six olives.

*Addendum II.* At a Meeting of the Managers of the Humane Society, Held on the 12th day of November, 1806.

It being represented by the Inspectors, that some of the Grapplings have been much injured by being used for improper purposes.

Resolved,—That no person be permitted to use them for any other purpose than for the taking up the bodies of drowned persons.

By Order of the Managers,

JOSEPH CRUKSHANK, President.

*Addendum III.* The specimens of Ethmoid and Sphenoid bones, herewith exhibited to the society, will demonstrate that in certain subjects, about two years of age, there are continued from the posterior part of the cribriform plate of the Ethmoid, two Hollow Triangular Pyramids, which, when in their proper situation, receive between them the azygos process of the Os Sphenoides.

The internal side of each of these pyramids applies to the aforesaid azygos process; the Lower Side of each forms part of the upper surface of the Posterior Nares; the External Side at its basis is in contact with the Orbital Process of the Os Palati. The base, of each Pyramid forms also a part of the surface of the Posterior Nares, and contains a foramen which is ultimately the opening into the Sphenoidal Sinus of that side.

In the Sphenoidal Bones which belong to such Ethmoids as are above described, there are no cells or Sinuses: for the Pyramids of the Ethmoid bones occupy their places. The azygos process which is to become the future septum

between the Sinuses is remarkably thick, but there are no cavities or Sinuses in it.

The sides of the Pyramids which are in contact with this process are extremely thin, and sometimes have irregular foramina in them, as if their osseous substance had been partially absorbed. That part of the external side of the Pyramid which is in contact with the orbital process of the Os Palati is also thin, and sometimes has an irregular foramen, which communicates which (*error*) the cells of the aforesaid orbital process.

Upon comparing these perfect specimens of the Ethmoid and Sphenoidal Bones of the subject about two years of age, with the Os Sphenoides of a young subject who was more advanced in years, it appears probable, that the azygos process and the sides of the Pyramid applied to it, are so changed, in the progress of life, that they simply constitute the septum between the Sinuses; that the External Side of the Pyramid is also done away, and that the Front Side and the Basis of the Pyramid only remain constituting the Cornets Sphénoïdaux of M. Bertin.

If this be really the case, the origin of the Sphenoidal Sinuses is very intelligible.

*Addendum IV.* The Wistar Association (Founded 1818).

#### *Constitution*

1. The name of the Association shall be "The Wistar Association," and it shall consist of the members now enrolled and of such members of the American Philosophical Society as may hereafter be chosen.

2. The number of members shall be limited to twenty-four.

3. Nominations to fill vacancies in the membership must be filed with the Dean before the fourth Thursday of October in each year, and the Dean shall notify all members, one week before the Annual Meeting, of the number of vacancies existing and the names of the nominees. At the Annual Meeting, vacancies shall be filled by a unanimous vote of the members present, after an informal ballot.

4. The Annual Meetings of the Association shall be held on the second Thursday in November in each year.

5. Special meetings shall be called by the Dean upon the request of three members to be specified in the call.

6. At the Annual Meeting the members present shall constitute a quorum; but at Special Meetings seven members shall be necessary for a quorum.

7. The officers shall consist of a Dean and an Executive Committee of three members, to be elected to the Annual Meeting.

8. The receptions in each season shall be given by the members of the Association on the first Saturday of each month, beginning with December and ending with May and the order in which they shall be held shall be determined at the Annual Meeting, to be varied by exchange between members, but not otherwise.

9. Such annual assessment shall be levied on the members as shall be found necessary by the Executive Committee.

10. Changes in the Constitution and Regulations can only be made at the Annual Meetings, after notice of the proposed change has been given in a call for the meeting, issued week in advance, or at a special meeting.

#### Regulations

1. The number of invitations shall not exceed two hundred in all, including the members of the Association. Members shall have the privilege of introducing strangers visiting the city.

2. The entertainment shall be simple in character, consisting of croquettes and oysters; one kind of salad; ices and fruits; and two kinds of wines (sparkling wines excluded), and one of spirits may be served.

Members proposing to withdraw from the Association must notify the Dean on or before the third Thursday of October in each year.

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# THE FRENCH SCHOOL OF SURGERY IN THE REIGN OF LOUIS PHILIPPE\*

By J. CHALMERS DA COSTA, M. D.

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**T**HE great French School of Surgery which flourished in Paris from the close of the Napoleonic wars until into the reign of Napoleon III had an immense influence upon the surgery of the world, in America as well as Europe. It reached its acme in the reign of Louis Philippe.

Among the many surgeons who were particularly enthusiastic in bringing some of the teachings of the French School to America were J. Mason Warren of Boston, William Gibson and Thomas D. Mutter of Philadelphia. Almost the first literary effort of the elder Gross was a translation of Tavernier's "Operative Surgery."

During the reign of Louis Philippe students gathered in Paris from all parts of the world. There were over thirty hospitals and about five thousand students of medicine. One who would specialize in toxicology, obstetrics, microscopy, orthopedic surgery, genito-urinary surgery, dermatology, venereal diseases, ophthalmology, pathological anatomy, medical diagnosis, plastic surgery, experimental physiology, higher chemistry, nervous diseases and insanity, or comparative anatomy, had to go to Paris. Paris set the fashions in social customs, in literature,

the drama, music and in science. France was the laboratory of the world in which experiments of the most daring sort were being made in Art, Government, Science and Literature, and Paris was the incandescent crucible in this laboratory.

The city contained the very best organized hospitals in the world. The twenty thousand hospital patients were used for the instruction of students and the various dispensaries were thronged. Medical science had attained a high stage of dignity. Subjects for dissection were plentiful. This was a time when dissection was viewed with horror in England. The interne was still a student of medicine. The term was four years and he received a salary of four hundred francs a year with board and lodging, and



DUPUYTREN.

he was allowed to take private classes through the wards and quiz students in the evening. An interne was obliged to have been an externe for one year first and an externe attended the Hospital twice a day to be of what service he could. The Hôtel Dieu alone had one thousand beds. Orfila, the first man to devise a method for detecting poison in the tissues, was Professor of Toxicology. Breschet, the distinguished surgeon, succeeded Bécлар as Professor of Anatomy. A common picture in the works of anatomy today showing the veins of the diploë is from Breschet's

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preparation. Sappey and Gosselin were the Demonstrators of Anatomy. A fracture of the radius is named for Gosselin, and Sappey became specially distinguished because of his studies of the lymphatics.

The great Cruveilhier was Professor of Pathological Anatomy; Andral of General Pathology; Trousseau of Therapeutics and *Materia Medica*; Dumas of Organic Chemistry; Margolin (we use the term "Margolin's ulcer today) of Surgical Pathology; Pelletan of Medical Physics; Broussais of the Practice of Medicine; Moreau and Dubois of Obstetrics; Gay-Lussac of Chemistry; Louis, Chomel and Rostan of Clinical Medicine. The Professors of Clinical Surgery were Roux, Cloquet, Velpeau and Bérard. Magendie and Bernard were teaching in the College of France.

Until his death in 1835 Dupuytren was one of the very eminent professors of surgery. The great name of Lisfranc does not appear in the list of the Faculty of Medicine.

We will say a few words particularly of these men: Dupuytren, Baron Larrey, Lisfranc, Velpeau and Roux.

Dupuytren was a kind of Emperor of Surgery. He was an immensely brilliant operator, exhibiting marvelous dexterity, proceeding with almost inconceivable speed. He was thought to be an extraordinary diagnostician.

Whereas Dupuytren profoundly modified surgery in all its branches, devoting particular attention to surgery of the bones and joints, hernia, tumors and other branches, he left one dominating opinion, namely, that inflammations of the right iliac fossa arise from the cecum. Mellier maintained that inflammation in the right iliac fossa was due to the appendix and not to the cecum. Dupuytren annihilated this view and Dupuytren's opinion remained supreme for over fifty years. Mellier, who was right, disappeared and the wrong view remained with the most ghastly results.

Larrey had been the great surgeon general of the great Napoleon, and he of all men was

most responsible for the modern system of care for the wounded on the battlefield and beyond it. He invented the flying ambulance. He invented the principle of field hospitals. Whenever the army paused for a few days, the surgeon would assemble schools for instruction. He trephined for meningeal hemorrhage. He opened the chest and drained for gun shot wounds of the lung. He was preceded only by Walter Brashear in amputating at the hip-joint. He used chlorinated dressings for infected wounds. He operated for empyema in direct opposition to the general practice of the times. He was a strong advocate of resections. The best known amputation at the shoulder-joint still goes by his name. His military Memoirs is one of the most delightful and instructive of books. Unfortunately he opposed the plan previously advocated by Desault of excising gun shot wounds.

A great rival of Dupuytren was Lisfranc. In their lectures they exhibited fierce animosity towards each other. Lisfranc referred to him as "the bandit of the river bank," and he refers to Lisfranc as "that man with the face of an ape and the heart of a crouching dog." In these rows the students participated. Lisfranc was considered one of the very greatest operating surgeons in France. This distinction he shared with Dupuytren and Roux. His name is still in the pages of operative surgery.

Velpeau had come from great poverty to the utmost distinction. We can see him in his old age if we read Daudet's "Kings in Exile," for old Bourchereau was drawn from Velpeau. He was the son of a blacksmith, taught himself to read and write, studied medicine at Tours, became an assistant of Bretonneau, and finally went to Paris where he became eminent in both surgery and obstetrics. His book on operative surgery profoundly influenced American practice, and his book on obstetrics was put into English by Professor Charles D. Meigs. He had the curious tendency to

throw a man for graduation if the applicant affected whiskers.

Among the great surgeons of this school we must mention the following: Nélaton, the inventor of the flexible catheter and the porcelain tipped bullet probe. He has been put into fiction by Ohnet in his novel, "Doctor Rameau."

Amussat, who introduced torsion for the arrest of hemorrhage; who gave lectures on Experimental Surgery; who published a discourse upon the entrance of air into the blood-vessels; who invented the double saw used to open the spinal canal in post-mortem examinations; who stood practically alone in advocating suprapubic lithotomy and whose study of the anatomy of the urethra led him to devise an operation for crushing stone in the bladder, apparently before Civiale's observations.

Marjolin, the great pathologist and diagnostician.

Civiale, who perfected and made practical the operation of crushing stone in the bladder. In order to increase his dexterity he used to walk through the streets of Paris with a lithotrite in his right hand trying to pick up nuts in his coat tail pocket. The operation of crushing came to be named Civiale's operation until it was greatly improved by Bigelow of Boston. Lisfranc submitted himself for operation to Civiale, and Civiale performed it over one thousand times.

Cloquet, Lafayette's personal friend, whose views on hernia we still quote, and who several times performed major operations upon hypnotized patients.

Guérin, one of the very first men to devote himself to the study of deformities, hence one of the founders of orthopedic surgery, and who probably devised the operation of subcutaneous tenotomy.

Joubert, the first to utilize the principle of the Lembert suture on human beings.

Malgaigne, whose great work on fractures and dislocations is still referred to.

Ricord, who was born in Baltimore of French parents, studied for a year in the University of Pennsylvania, went to Paris as the bearer of some specimens to Cuvier; finished his course in that University; became the greatest authority of his age on venereal diseases, proving the duality of syphilis and chaneroid. Ricord was a master teacher. We still remember his designation of the glands below Poupart's ligament as the moral glands and the glands above Poupart's ligament as the immoral glands, and his calling the glands of the groin the *glandulae Pléiades*, and his illustration as to the looseness of the hair of a syphilitic when he said if a syphilitic fell overboard and someone attempted to save him by grasping his hair, he would be drowned. He is referred to in Daudet's autobiographical work, the book in which the great French author describes his early days in Paris.

Of Roux, who made the operation for cleft palate a successful procedure and who was noted for his cataract operations, Gross used to say, as he said of Levis—that his operating was the poetry of surgery.

Many others we would mention—the younger Larrey; Richerand; Blandin (after whom a gland is named); Boyer; Maisonneuve (after whom the urethrotome is named); Chassaignac (after whom the carotid tubercle of the sixth cervical vertebra is named); Hugier (after whom a bony canal is christened); Sanson; Cullerier; Denonvilliers and many others; and I have not mentioned many of the most eminent alienists, ophthalmologists, obstetricians, etc. Certain it is that never in the records of medical history have so many great surgeons been gathered together in one city at one time as constituted the teaching force of Paris in the reign of Louis Philippe.

# LONDON SURGERY IN THE EARLY PART OF THE NINETEENTH CENTURY\*

By JOHN H. GIBBON, M.D.

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THE early part of the nineteenth century saw in the operating theatres of the great London hospitals men whose teaching and writings greatly influenced American surgery and with whose names every student of medicine today is familiar. At this period Astley Cooper was teaching at St. Thomas's and Guy's; John Abernethy at St. Bartholomew's; Benjamin Brodie at St. George's and Charles Bell at the Middlesex. These names are writ indelibly on the pages of surgical progress. Another name, not so familiar, but probably as much on the tongue of his contemporaries, both lay and medical, was that of Thomas Wakley, the founder of the London *Lancet*, who has passed down to us as a great medical reformer, but who was looked upon during his early career, and not without some reason, as a meddler, a busybody and, to use a more modern term, a "mud-slinger." On the present occasion we will say briefly something of the life and work of two of the great surgeons of this period, Cooper and Abernethy, and then at greater length consider the activities of Wakley, directed at the reformation of the great London hospitals and of the teaching of surgery, particularly as they affected Sir Astley Cooper and John Abernethy.

Sir Astley Cooper stands out pre-eminently among his contemporaries as the master figure in the world of surgical work and teaching. By them he was designated the "Prince of Surgery," and the "Wellington of British Surgery." His physical appearance, as well as his gentlemanly bearing and his mental attainments, did much to place him where he stood. His accomplishments as an operator, a teacher and a writer of surgery were not spoiled by defects of character or behavior, so

that one going to his clinics, after hearing of him and reading his writings, never felt that his idol was one with "feet of clay." His was not a personality of which one could say "distance lends enchantment" or "familiarity breeds contempt." All his students and those who visited his clinics from foreign lands admired and respected him the more because of their more or less intimate contact. One can get some conception of the man from the following description of him in later life by William Gibson, Professor of Surgery, University of Pennsylvania ("Rambles in Europe in 1839"):

Imagine a tall, elegantly formed man, moderately robust, with a remarkably pleasing and striking countenance, red, and fresh as a rose, apparently about fifty-eight or sixty years of age, but, in reality, above seventy, very agile and graceful in all his movements, simply, but handsomely attired, with the spirit and vivacity, and bearing of a youth, with, in short, no marks of advanced age, except a head as white as the driven snow,—and a very just conception may be formed of the appearance of Sir Astley Cooper.

Cooper was born in 1768 and his youthful pranks and love of things other than the pursuit of knowledge gave no promise of what he was later to become. Perhaps it is enough to say that he was a son of a clergyman. His indulgences it should be said, however, were of an innocent and normal character and honesty and truthfulness his striking qualities. His father perhaps understood him better than any one else, for of him he said, "He is a sad rogue, but in spite of his roguery, I have no doubt he will yet be a shining character." How much this comforting prognostication was due to perception of character and how much to parental prejudice, it is hard to

\*Read at the meeting of the Section on the History of Medicine of the College of Physicians of Philadelphia, November 30, 1921.

say. His intellectual awakening occurred when he was apprenticed to the anatomist Cline, who inspired him with his first professional enthusiasm. From this time he became a hard student and one who loved his work. He married at the early age of twenty-three, which may have had the effect of impressing upon him the responsibilities of life. In 1792, a year after his marriage, he went to France, then in the upheaval of revolution. His safety and freedom to pursue his studies at the feet of such men as Desault, Dupuytren and Lisfranc in Paris was probably due to introductions by his master, Cline, who was supposed to sympathize with the revolutionary movement. Among Cooper's great teachers, besides John Hunter and others of his own countrymen, should be mentioned the great Frenchman, Desault, the great Italian anatomist, Scarpa, and the great plastic surgeon of Germany, Dieffenbach. Desault must have excited great admiration in young Cooper, as he was not only a great surgeon, but a great anatomist. It was he who revived for the second time the ligation of arteries in amputations, a thing unhappily forgotten after its first revival by Ambroise Paré in the sixteenth century. Desault's character is summarized by his pupil and biographer, Bichat, himself a great anatomist, in rather a peculiar manner—"apprendre fut son premier besoin, savoir sa première jouissance, devancer les autres sa première pas-

sion." The last characterization is hardly one that appeals to our present-day ideas, or at least it is not one we would like to have attributed to us by our friends and admirers. I cannot believe that this desire to get ahead of others, for instance, was an attribute of Cooper.

In 1793 Cooper at the early age of twenty-five was Professor of Anatomy in Surgeons Hall, and from this time on throughout his life he was the hardest kind of a worker, the keenest thinker and the most prolific writer. Early in his career he might have been described as an experienced surgeon, for experience in this sense does not mean time spent in surgical practice, but it means the perception of things as they present themselves to one, the ability to weigh and record them, and to recall them to mind later; and



SIR ASTLEY PASTON COOPER, BART., F. R. S.

at these Sir Astley Cooper was unexcelled. Much of his later success as a teacher and writer may be ascribed to this highly developed power of observation and memory. His notable contributions to surgical literature were in the shape of monographs, all of which showed originality and were based on large experience and thorough study. Among these one should mention his work on "The Membrana Tympani," "The Thyroid Gland," "Hernia, Dislocations and Fractures," "The Breast" and later, "The Testis." His lectures on "The Principles and Practice of Surgery" were also published in book form. For clearness of thought and

comprehensibility his writings are unsurpassed. His lectures must have been of the same quality for he was the most popular lecturer of his time. A few years ago I saw a publication of the notes made by a New England surgeon of Cooper's clinical lecture on harelip and was struck by the fact that the operation he did then (1819) was practically that done today and far better than that in vogue twenty or thirty years ago. He laid stress on the importance of correcting the deformity of the nostril as well as that of the lip, condemned the use of pins and advised the use of no dressings. But for seeing these notes made a hundred years ago, I would have supposed that our present day operation for harelip was really modern. One operation which seems a remarkable thing for a surgeon of his time to have done was the ligation of the abdominal aorta for iliac aneurysm. The patient succumbed, but the performance added to Cooper's fame as it was the first performance of the operation. The ligation of the abdominal aorta has since been done twenty times, but always with the same fatal results, excepting in a case recently reported before the American Surgical Association by George Tully Vaughan of Washington (*Ann. Surg.*, Sept., 1921).

Hamann, of Cleveland, reported in 1918 a case that survived the operation for six months and then died from a hemorrhage from a bed sore (*Trans. Am. Surg. Assn.*, 1918, p. 495). To get a proper conception of Cooper's operation it must be pictured as done in the pre-anesthetic and pre-antiseptic period.

Cooper was particularly fond of preserving pathological specimens and he had in his own house probably the largest and most valuable private collection in the world. Cooper died at the age of seventy-three and was active up to a short time prior to his death.

In 1768, four years before the birth of Cooper, John Abernethy was born. Unlike Cooper, "at an early age he manifested abilities, both general and peculiar, which

were indicative of no ordinary mind; and which, though they do not necessarily prefigure the future eminence at which he arrived, were sufficiently suggestive of the probability that, whatever his career might be, he would occupy a distinguished position" ("Memoirs of John Abernethy, F. R. S.," by George Macilwain, 1853). He, like Cooper, had the great advantage of attending the lectures of John Hunter and from him derived great inspiration. He too visited the Paris hospitals and came into contact with the great French surgeons already mentioned. Abernethy, again like Cooper, had a marvelous memory. It is said, on the occasion of his wife's birthday, a friend attending the dinner given in her honor, presented to her some original verses. When he had finished reading them, Abernethy laughed and said, "You did not write those verses." But the embarrassed friend maintained his authorship and was much chagrined when Abernethy got on his feet and repeated every line word for word. The atmosphere was cleared and amiability restored, however, when it was discovered that Abernethy had memorized the lines as his friend read them.

Abernethy in addition to being an anatomist and surgeon, was a philosopher and his contributions to surgical literature were probably of a more strictly scientific character than those of Sir Astley Cooper. In 1787, at the age of twenty-three, on the retirement of Mr. Pott, he was made assistant surgeon of St. Bartholomew's Hospital and revived teaching at this institution, which had woefully deteriorated after Pott ceased his lectures. He gradually became, through his devotion to his work and his clear philosophical way of considering the subjects under discussion, one of London's great teachers and was probably surpassed only by Sir Astley Cooper. Although the times in which they lived were not characterized by the *politesse* of our day and professional jealousies were less concealed and medical discussion franker and more acrimonious, these two great teachers seem to have been



able to live quite peaceably together in the same small town of London.

Abernethy did much to arrest the reckless trephining for head injuries and drew a striking picture of the difference between concussion and compression of the brain. His study of this subject was probably much deeper than that of Desault, who condemned the operation much more forcibly and failed to practice it in the cases in which Abernethy clearly saw its advantages. The operation had become in the hands of some operators a "mischievous conventionalism," like so many others, even in our own enlightened day. The development of a dexterous facility in the performance of an operation, without the surgical judgment to recognize its indications and its contraindications, renders a surgeon a menace to society. Aber-

nethy, like the surgeon he was, provided the judgment which showed the cases which should be trephined and those that should not. Abernethy was distinctly an investigator. He was constantly carrying out scientific experiments of a chemical and physiological character. He was fond of comparative anatomy, and the study of the structures and of the physiological processes in the lower animals constituted one of his favorite pastimes. While Cooper was the great practical surgeon of his time, Abernethy was the great scientific surgeon. As assistant surgeon at St. Bartholomew's, a position which he held for twenty-eight

years before being made surgeon, he had little opportunity for operative work in the wards, but during this period his scientific investigations, his constant contributions to surgical literature and his teaching won for him a wide reputation at home and abroad and brought him a lucrative private practice. When he was finally

elected surgeon to St. Bartholomew's in 1815, he expressed his intention of resigning at the age of sixty, and urged upon the Board of Governors to pass a rule making retirement at this age with a pension compulsory. Although the suggestion was not adopted, Abernethy himself resigned as surgeon when he reached the age of sixty, but served one year additional at the earnest solicitation of the Governors. He had suffered from that vicious system which existed in

many London Hospitals up to fairly recent times, of keeping capable and distinguished men in the position of assistants, when their seniors had long since passed the age of productiveness, or even physical ability to perform their duties.

In his later life Abernethy bought a place in the country and tried, although too late, to preserve his health and physical strength by exercise on horseback. This pleasurable pursuit he was only able to follow for a short time and at irregular intervals, as he had a weak heart and before his death developed an incurable lameness. He died in 1831 at the age of sixty-seven.



JOHN ABERNETHY, F. R. S.

No consideration of the surgeons, the surgery and the hospitals of London at the period of the two great men we have been discussing, would be complete without some reference to Thomas Wakley, founder of *The Lancet*, who undertook with the establishment of this journal the correction of certain evils he believed to exist in the hospitals and in the teaching of surgery.

Wakley's early career as an editor was a stormy one; it consisted largely in writing in a vitriolic and often scurrilous manner of surgeons and hospitals and in being sued for slander by those attacked in his journal. It is hard for us now to conceive of the respectable *Lancet* having been in any sense comparable to our sensational yellow journals, but it was in this complexion that it appeared to the vision of most of those who occupied high places in London a hundred years ago. One of the principle objects of its founder was the spread of surgical knowledge, as it was presented in the hospital lectures of the great surgeons, not only to the profession at large, but also to the laity. The articles in *The Lancet* were not only read by the laity, but were extensively copied by the newspapers, thus bringing the lecturers into unpleasant notoriety. Its pages were not confined to medical matters, but dealt with political and theatrical news, so one can easily imagine the stir its appearance made in this conventional and conservative medical center. The editor believed that medical education and hospital positions were controlled by a few men to the exclusion of better ones and that nepotism was a factor in the selection of those who were to carry on the medical teaching. He was fearless in his attacks, and the higher the man whom he believed deserving of criticism the more pleasure he took in the attack.

Wakley's career was too full to be even epitomized here, but a few of his encounters with the surgeons of his time will no doubt be of interest. He first published, without authorization, the lectures of Sir Astley Cooper. These were given verbatim, having

been taken in shorthand, and were promptly copied by the newspapers. Wakley had been a pupil of Cooper, and the latter, not liking the publicity given his talks, remonstrated, with the result that a compromise was reached: The lectures were to be published in *The Lancet*, but Cooper's name was to be eliminated; a sorry compromise as everybody knew whose lectures they were.

The lectures of Abernethy were then published with his name and in spite of remonstrance on his part were continued. Abernethy brought action against the publishers to prevent the publication of his lectures. He maintained that they were private property, while Wakley contended they were public property. While this action was going on in court, Wakley wrote derogatory and unjust articles on Abernethy, saying among other things that all that was good in his lectures could be found in the works of John Hunter. After a number of months Abernethy was successful and the injunction asked was granted by the court. Within less than a year Wakley applied for a withdrawal of the injunction and, as it was unopposed by Abernethy, his petition was granted.

Two years after its inauguration, *The Lancet* dropped its dramatic, political and chess news and became a strictly medical paper, but its contents continued to be reproduced in the lay press. One of the departments of *The Lancet* was that known as "Hospital Reports," and now continued as "A Mirror of Hospital Practice." Here were described cases presented or operated upon in the clinics and often the findings at autopsy. Wardrop was the man in charge of this department and, of course, being an excellent surgeon himself, he was a competent judge of the matter which would appear. Most of the material came from Guy's and St. Thomas's Hospitals and the reports at first were quite complimentary; but with the beginning of the second volume, criticism began to appear and later became so caustic that Wakley, an old student of St. Thomas's, was denied the privilege of

its clinics and wards. This, instead of stopping criticism, only fanned it into fiercer flame and the reports of mistakes in diagnosis and treatment became more frequent.

Mr. Tyrrell, a nephew of Sir Astley Cooper and a surgeon to St. Thomas's, published a volume of the latter's lectures with illustrative cases from his own service. This excited the ire of the hot-headed editor, who wrote a scathing article, claiming that the lectures had been taken word for word from the columns of *The Lancet*. Later, his first article having brought no reply, he again attacked Mr. Tyrrell, accusing him of literary and professional incompetency and dishonesty. He asserted that Tyrrell's illustrative cases were badly chosen and that one was recorded as a success when the patient had died. This article was so scandalous that Tyrrell was forced to sue Wakley and the trial is interesting reading ("The Life and Times of Thomas Wakley," by S. Squire Sprigge, 1897). A verdict was given for the plaintiff and the damages assessed at £50. Following the verdict the irrepressible Wakley published in *The Lancet* a sarcastic review of the trial and repeated everything he had previously said of Mr. Tyrrell. He rallied Tyrrell's lawyer upon his statement that the publication of medical lectures was especially profitable.

"How did he know that there was such profit," asked Wakley. "If he (the learned Serjeant) would commence the publication of the next course of gratuitous lectures delivered by his renowned client, Mr. Frederick Tyrrell, we will venture to assert that by doing so for the next seven years he will not obtain sufficient profit to purchase powder for his wig."

We will pass over Wakley's attack on the government of the Royal College of Surgeons, and consider another suit brought against him by another nephew of Sir Astley Cooper. Under the caption "The Operation of Lithotomy by Mr. Bransby Cooper Which Lasted Nearly An Hour," he published a dramatic description of an

operation by Bransby Cooper and divided it into Acts I and II, with an epilogue, the autopsy. This was decidedly the most scandalous attack ever made by Wakley, and in reading it one cannot excuse the author whatever high motives he may have claimed. He practically described the younger Cooper as a bungling, incompetent ass, who owed his position entirely to the influence of his distinguished uncle. The greatest emphasis was laid upon the long time it took the operator to do an operation which a skillful one would have performed in six minutes. He was said to have lost his head and complained in the hearing of the patient that he did not know why he should be meeting with so much difficulty, and it was further stated that he made a false passage which was confirmed at autopsy. Dr. Hodgkin, the then lecturer on morbid anatomy at Guy's, testified at the subsequent inevitable suit brought by Cooper against Wakley, that the false passage was evident only after the specimen had been handled in his absence by Mr. Lambert, the reporter of *The Lancet*, and it was his firm conviction that the rent had been made after death by Lambert. The trial excited the greatest popular interest, and although Cooper won the case and £100 damages, one cannot but feel that Wakley enjoyed the publicity and excitement and had no sympathy for the man whose professional standing he did so much to ruin. Wakley had at this time a strong following, and after the trial he was given a great dinner at which the guests took up a subscription which paid the damages assessed against him and also the costs. Bransby Cooper weathered this storm and became one of London's distinguished surgeons. Wakley even in his own day was considered to have accomplished a great deal to improve the profession, the teaching of medicine and the management of hospitals, but his methods were certainly drastic and were carried out regardless of the feelings and rights of others.

How would we welcome a Wakley today?

# THE DUBLIN MEDICAL SCHOOL AND ITS INFLUENCE UPON MEDICINE IN AMERICA<sup>1</sup>

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THE Irish, a mixture of primitive pre-Celtic peoples and of Goidelic Celts coming from the European continent, developed in the early Middle Ages, out of their own resources and untouched in any marked degree by the all-pervading influence of Rome, a remarkable indigenous culture. In particular they elaborated a native type of Christianity which with characteristic energy and wandering spirit they carried to Scotland, to Northern England—to Northumbria—to France, to Belgium, and to Switzerland. St. Columba, of Iona, and St. Columbanus, of Luxeuil, stand forth as the great militant missionaries of that first flowering period of Irish civilization. Although they and their successors had to succumb to the greater might of Latin Christianity,<sup>2</sup> they left dotted over Europe a number of large monasteries which became active centers of learning for the medieval world.

Unfortunately for civilization, the age of learning in Ireland was of short duration. I have not the time nor is this the place to discuss the causes for the decadence of Irish culture. Those who are interested will find a keen analysis of the factors involved in Henry Osborn Taylor's "The Medieval Mind" and in Oman's "History of England," Vols. 1 and 11. Suffice it to say that for nearly 1100 years Ireland's influence upon European culture was negligible. Barring an occasional poet or essayist or a

universal genius like Robert Boyle, Ireland did not produce a perpetuating body of learned men who made their influence felt beyond the confines of the Green Island.

Of the history of Irish medicine in the Middle Ages, little is known and the subject is largely an untilled field. Norman Moore (*St. Barb. Hosp. Rep.*, 1875, ii, 145) has resuscitated a few of the original manuscripts in the Irish language. Most of them are translations from the works of Bernard de Gordon, especially from his "Lilium Medicinæ"; of John of Gaddesden's "Rosa Anglica"; of the works of Avicenna, of Averroës, of Isaac, and of the Salernitan School. Much space is given to the writings of Isidorus. This Isidorus is the famous Spanish churchman, bishop of Seville, who not only was a master of theology but a writer upon every branch of knowledge of his day. The fourth chapter of the twenty making up his "Etymologiae," perhaps the earliest encyclopedia extant, deals with medicine.

In one of the manuscripts (Arundel, 333), the date of which is 1514, a number of ancient and medieval authors are cited, among them one Philaretus, of whom little is otherwise known. His treatise is on the pulse and is based upon the teachings of Galen on the same subject. Philaretus, however, describes only ten varieties of pulse, while Galen classifies twenty-seven different kinds as regards size and twenty-seven as regards rate. What a memory task for the student of medicine of early days!

It appears that in ancient Ireland physicians commanded a high respect; thus Diáncécht, who cured the wound of Naudhat after that chieftain had lost his hand in battle and provided him with a silver hand

<sup>1</sup> Read before the Section of Medical History of the College of Physicians of Philadelphia, November 30, 1921.

<sup>2</sup> The chief contentions had to do with the method of determining the annual Easter festival and the mode of tonsure and a few other trivial differences. All were smoothed out eventually at the Synod of Whitby in 664.

and thereby with a kingdom,<sup>3</sup> is said in the ancient law books to have given "judgments which were the first."

It is evident from the most cursory review of Irish history that the great Italian Renaissance which fired the dormant mind of France and Germany and paved the way for the Elizabethan period in England, somehow failed to cross the Irish Sea. But eventually Ireland had a Renaissance which, though late, was noble. It began with medicine and spread to literature and physical science, indeed to all departments of learning. The revival, as far as it concerned medicine, was in every way remarkable and gave the Dublin Medical School in the first half of the nineteenth century a place of the highest importance and made of it a center whence the continent of Europe and the schools of this country drew inspiration.

We shall better understand the position of the Irish school if we review briefly the history of the medical schools in Europe. The first to emerge from the undifferentiated scholasticism of the Middle Ages was that of Salerno, whose influence, though short-lived, was enormous while it lasted. Montpellier took its place and is remembered among other things as the school where the great Sydenham studied. Next came the

<sup>3</sup>There was an ancient law in Ireland that a man who was not perfect could not be king.

University of Paris and that of Padua; the latter though not disputing even remotely the palm with Paris, nevertheless was the alma mater of many great men. Paris from the time of that great Franciscan friar, Roger Bacon, of Albertus Magnus, and of Petrus Hispanus never lost its high place except during the delirious period of the French Revolution. The University of Leyden came next as a Mecca and then Vienna, which brings us down almost to the latter half of the eighteenth century.

About this time, the Edinburgh School emerged upon the horizon and became a steady beacon light, shining with special warmth upon the American Colonies and soon after upon the young independent nation. It is no part of my task to discuss at any length the influence of the Edinburgh School upon American medicine, and I am referring

to it merely because it is closely connected in aim and spirit with the Dublin School; and also because, in the formative period of our national life, a greater influence was exerted upon medicine by Edinburgh than by any other place. In a very real sense, medical education in this country is a heritage from that of the Athens of the North. The period of Edinburgh's greatness coincides with the life of Cullen, the Monros, Drummond, Gregory, and the strange, enigmatic John Brown. As an index of the



WILLIAM STOKES.

popularity of the Edinburgh Medical School, we have the fact that between 1768 and 1788, sixty-three Americans studied there. Curiously, only one of these came from New England (Alfred Stillé: "Life of John Dickinson," quoted by Packard: "History of Medicine in the United States," Philadelphia, 1901). A minor reason for the strong trend towards Edinburgh was that one could obtain there the degree of M.D., while London bestowed only that of M.B.<sup>4</sup> The preeminence of the Edinburgh School endured about seventy-five years; then it waned, partly from a cyclical decline in the greatness of its men, partly because of keen competition, mainly from two quarters, Paris and Dublin. Dublin's fame as a medical center was created by a few men, and had no continuity. With their death, died its renown; yet although its life was short—a span of scarcely twenty years—it had an influence that endures in this country until the present day.

Three striking features characterize the early development of medicine in this country. The first is an instinct for travel, as indicated by the large number of doctors from the young country, who went abroad to study. It would not be altogether to the advantage of American medicine if the habit of going abroad were to die out, as some ultra-patriotic citizens fondly hope; but even if the practice should become rare, there is no reason why men should not go from one medical school to another in this country during their undergraduate years.

The second feature is the previously cited influence of the Edinburgh School. The Medical School of the University of Pennsylvania, the oldest in the United States, is the direct descendant of Edinburgh University, having been founded by John Morgan on his return from Edinburgh in 1765. Samuel Bard, the co-founder of the

<sup>4</sup>It may be remembered that at first the University of Pennsylvania granted only the degree of M.B. in course, while Columbia University bestowed the more popular M.D. at graduation.

College of Physicians and Surgeons in New York, was likewise a student at Edinburgh.

The third feature is the early age at which men ripened into prominence and leadership. Not only was this true of medical men; it was also true of statesmen, scientists, and artists. One reason why men matured so much earlier in those days is because the institution of a rigid four years' college course had not yet attained the sanctity of a canon law or the inviolability of a constitutional enactment. Men's progress depended on their abilities, and not upon the accumulation of a certain number of units of credit.

The fame of the Irish School began at about the time when that of Edinburgh was beginning to wane. What made the School of Dublin suddenly great? It was principally the work of two men, Graves and Stokes, master and pupil, who are in a large measure responsible for the type of clinical teaching prevailing in this country today. I have elsewhere sketched the history of clinical teaching ("The History of Clinical Teaching," *Annals of Medical History*, 1920, ii, No. 2, 136-147); how slight and hesitating its beginning in 1574, in Italy; how, after a time, it disappeared completely; how, in this country, less than one hundred years ago, men were graduated without ever having examined a patient,—in proof whereof, I would refer you to that most fascinating of autobiographies, J. Marion Sims'.<sup>5</sup> As Graves states in one of his brilliant lectures, even in France at that time the teaching in the wards was expository rather than practical, the professors indulging in long harangues to large groups of students. Only in Germany did Graves find the right method employed. He praises the gentleness and humanity of German physicians, who, not to shock the patient's sensibilities, would put unpleasant diagnoses in Latin; contrary to the practice in France

<sup>5</sup>See also "The Great Irish Clinicians of the Nineteenth Century." *Johns Hopkins Hosp. Bull.*, 1913, Vol. xxiv, No. 270.

of discussing in the vernacular the worst possibilities in the presence of the sick man or woman. He had little patience with his own countrymen, who had "one language for the rich, and one for the poor."

In their influence upon internal medicine in America, Graves and Stokes compare with John Hunter and Astley Cooper in theirs upon surgery. To be sure, in making this statement, I do not intend to class Graves and Stokes with John Hunter, who through his genius and originality stands by himself as the mark of an era in the history of medical science.

Graves whom Alfred Stillé classed among the great of the earth, was the son of a clergyman, and illustrates what I have said about early maturity. At the age of twenty-four, he delivered an introductory clinical lecture, in which he pointed out, as one writer says (Kirkpatrick: "History of Medical Schools in Trinity College, Dublin," 1912), those basic principles of medical education which were destined to change the clinical teaching, not only of the Dublin School, but of the medical schools throughout the world. Under the old method, the majority of students never came in contact with the patients at all, but had to trust solely to their ears for information. This information was, until the year 1831—at least in Dun's Hospital—given in Latin; as Graves says, "I have called the language Latin in compliance with the generally received opinion of its nature."

It is an interesting commentary on medical examinations of the day of Graves that he states with much amazement ("System of Clinical Lectures," Graves and Gerhard, Third Edition, Philadelphia, 1848, p. 22) that it was not unusual for the Italian clinician, Tommasini, to spend more than two hours upon eight or ten cases. That was of course before history taking had become an art; before percussion and auscultation had been incorporated into the routine of physical examination; and before

the laboratory had made a place for itself in medical practice.<sup>6</sup>

Graves, in the Meath Hospital, taught medicine at the bedside and gave the students themselves an opportunity to examine patients. Physical examination at that time had barely emerged from its age-old chrysalis. Percussion was still in the hands of the few, notwithstanding the fact that Auenbrugger's great discovery was more than fifty years old; and the translation of his book by Corvisart, the method's second father, about twenty. The stethoscope was looked upon by many as a toy; even as a harmful one, as is shown in Oliver Wendell Holmes's facetious poem "The Stethoscope." As long as the advantages of percussion and auscultation were not realized, physical examination was considered of minor importance; and just as men today inveigh against the laboratory as stifling the older methods of careful physical examination, so men in the day of Graves and Stokes and of Gerhard and Jackson decried the Laënnecian method and that of Auenbrugger as threatening to cause a neglect of the study of symptoms.

Graves, as well as Stokes, of whom I shall speak more fully later, while not the first to make use of bedside teaching—Boerhaave had done it 100 years earlier—did it so consistently and so successfully that it was adopted by clinical teachers elsewhere and especially in this country where the lectures of Graves had been published in repeated editions and had been read with avidity. Moreover, the Americans who studied in Dublin brought back with them the methods of bedside teaching, to learn which had been, as Moreton Stillé states, their chief motive for going to Ireland.

It is hard to estimate the influence Graves exerted upon medicine in this country through the publication of his clinical lectures, many editions of which were

<sup>6</sup> During the Yellow Fever epidemic in Philadelphia in 1793 Benjamin Rush saw from 100 to 120 patients a day, not to speak of those who stopped him on the street to seek advice.

brought out by Philadelphia publishers. Trousseau's comment on these lectures is such a remarkable tribute that it deserves to be quoted:

For many years I have spoken well of Graves in my clinical lectures. I recommend the perusal of his work; I entreat those of my pupils who understand English to consider it as their breviary; I say and repeat that of all the practical works published in our time, I am acquainted with none more useful, more intellectual.

What clinician is living today of whom such words of praise may be spoken?

I shall not refer in detail to the specific contributions of Graves to medicine; his name is, of course, enshrined in Graves' disease, which is described in his "Clinical Lectures" (Philadelphia, 1838, p. 136) and in his "System of Medicine" (Philadelphia, 1848, p. 570). He points out clearly the goiter, the rapid heart, the exophthalmus, the lagophthalmus, and the nervousness.

Keen and penetrating as was the mind of Graves, he did not realize the imminence of great discoveries in the field of medicine; otherwise he would not have indulged in dangerous prophecy which led him to write as follows in the *Dublin Journal of Medical Sciences*, viii, 136:

It is true that we are—and I fear shall ever remain—ignorant of this poison (of fever). We know just as much of the nature of the febrile miasm or the virus of syphilis as was known in the very infancy of medical science; the mode in which either acts still continues among the impenetrable arcana of nature. All we can do is to observe their effects, and, from them, draw practical conclusions which may be rendered available to treatment; to study their phenomena with attention, and to employ such remedies as observation and experience have proved to be most applicable, without expecting to be able to explain their effects in the majority of instances. Fever is, in a strict sense of the word, a general disease; and there is, in the case of a fever patient, no one point on which the physician can lay his hand and say, "Here is the local habitation of

the disease; if I can succeed in removing this, I am certain of success."

Little did he think that on the Continent Henle's scientific imagination was dreaming of a *contagium vivum*; that Virchow was patiently and quietly elaborating his revolutionary theories of cellular pathology; and that the anthrax bacillus was nearly ready to have itself discovered.

Graves' share in the differentiation of typhus and typhoid fever is, in a sense, passive and indirect. There was apparently little typhoid fever in Ireland, so that his experience was limited largely to typhus. Yet he must have seen typhoid fever on the Continent. Moreover, it is highly probable that cases of the disease came to the Meath Hospital but Graves, believing firmly in the essentiality of fever and looking upon fever as a disease entity, did not make the distinction drawn by others.<sup>7</sup>

The first to draw attention to the radical differences between typhus and typhoid was H. C. Lombard, a physician of Geneva. In two famous letters dated June 13 and July 18, 1836 (*Dublin J. M. Sc.*, 1839, Vol. xiv) Lombard pointed out the pathological and clinical differences of the two diseases. His letters apparently made very little impression in Europe, and it was left for W. W. Gerhard, of Philadelphia, to establish the differences for all time. Although Gerhard was never in Ireland, he was thoroughly familiar with Graves' description of typhus fever and used that description, as well as an experience with a few cases seen in Scotland, as the primary basis for his work. Graves, though not appreciating the full value of Gerhard's signal contribution, reciprocated, as did the other members of the Irish School, the good will of the American clinicians. When Gerhard published a description of typhus fever as he had observed it at Blockley, Graves at once accepted it as an accurate description of the same disease prevailing

<sup>7</sup> "In the whole range of human maladies, there is no disease of such surpassing interest and importance as fever." "Clinical Lectures," edited by Dunglison. Philadelphia, 1858, p. 254.



in England and Ireland. Gerhard delivered his lecture at the Philadelphia Hospital and published it in the first number of the *Medical Examiner*, a Philadelphia publication of ephemeral existence (Stewardson, *Transactions of the College of Physicians*, 1863-1874, iv, 473).

Stokes (1804-1878) although younger than Graves, was even more conservative—probably because he came of a long line of eminently respectable ancestors. His father, Whitley Stokes, was Regius Professor of Medicine in Dublin for many years and a distinguished scholar in various fields. Though Stokes outlived Graves by many years, he never gave up his belief in the unity of fever—in fever as a disease with different forms of anatomic manifestations. Only one who deliberately shut his eyes to the evidence could maintain such an outworn creed.

The relation between Graves and Stokes was admirable, and helped to strengthen their influence upon their immediate pupils and upon the world at large. Whenever an important issue arose, as, for instance, the defense of stethoscopic auscultation, they entered the lists together, neither jealous of the other. They must be credited in a large measure with popularizing the use of the stethoscope in this country as well as in Great Britain. The opposition to this instrument was more intense than anyone of the present day can conceive. Indeed, the attacks made by some contemporaries of our own upon the laboratory are but a feeble echo of the antistethoscopic storm.

As an illustration of the attitude, in the year 1838, of Graves and Stokes, and a now forgotten writer named Clutterbuck, I will quote the following letter published by the two Irishmen in the *Dublin Journal of Medical Sciences*, 1839, xiv, 138:

DR. CLUTTERBUCK *versus* THE STETHOSCOPE.  
DR. HOPE, ON AUSCULTATION IN VALVULAR DISEASE. In the heading of this notice, we have connected the names of the above gentlemen; because, although they are in no way related as authors or colleagues, they have (no

doubt, unwittingly) joined to injure the cause of auscultation and of science in their late publications; the one, by attempting to detract from its value; the other, by ascribing to it powers which it does not possess. In the *London Medical Gazette*, for July 28, 1838, we have a lecture of Dr. Clutterbuck on the Treatment of Periodical Asthma and on Blood-Letting in Specific Inflammations of the Chest. In this lecture this irritable effusion appears:

“I may take this opportunity of advertising to the method of investigating diseases of the thorax by auscultation; that is, by listening attentively to the sounds emitted during respiration and also by sounding the cavity by tapping with the ends of the fingers on different parts of the chest. This mode of examination has always been resorted to more or less by physicians; though, from the employment of a load of new terms invented chiefly by our ingenious neighbors, the French, and introduced by some of our own practitioners, who have enjoyed the advantages of the Parisian schools, one would be led to suppose that a new region of science had been discovered, not inferior to mesmerism or homeopathy. As a specimen of the new language introduced on the occasion, I may enumerate the following, indicating, it is supposed, as many various conditions of the organs in question: Thus, in the compass of a few pages, you will meet with the following: Pectoriloquy, perfect and imperfect; bronchophony; pneumothorax; rhonchus; crepitation, fine and coarse; vocal resonance; tinkling echo; metallic tinkling; amphoric, or bottle-like, sound; clicking; bubbling; gurgling; snuffling; whiffs of a cavernous respiration, fistular resonance, like that of a pan-pipe or key; pectoriloquy, forming a little island of voice; *cum multis allis*.”

Dr. Clutterbuck seeks to destroy the fame of Laënnec by the worn-out system of denying his originality. Can he point out a single author who used auscultation as Laënnec did, from the time of Hippocrates to the discovery of the stethoscope? He cannot. He is strangely ignorant, when, combining the modes of auscultation and percussion, he states that “this mode has always been resorted to by physicians”; and his joke about auscultation as equal to mesmerism and homeopathy comes with bad grace from one himself the author of an unphilosophical and exploded theory of fever.

But Dr. Clutterbuck is an auscultator. He can tell by "the tone of the cough, whether there is not a great cavity in the lungs, the result of suppuration or ulceration." He can tell with "tolerable precision whether a quantity of mucus lies loose and flooding, as it were, in the air tubes!" He can judge of the state of the larynx by the sound of the voice; and ascertain whether the lungs are pervious to air. His powers of diagnosis are certainly great; his power in chest disease must be equally valuable.

We suspect Dr. Clutterbuck's sense of hearing must be injured; for to him, the "ear-trumpet" magnifies, but distorts the sound, rendering it less distinct than before. He holds that it may be classed with the telescope and the microscope, and includes all three in his anathema, and he adds that "the information thus acquired, supposing it to be correct, comes too late, in general, to be of any practical use. It serves to indicate the consequences of disease, rather than disease itself; and that, at period when they are far beyond the power of art to remedy."

It is not true that auscultation only detects fully formed diseases. Its chief value is the facility with which it enables us to recognize the true nature of pleurisy and pneumonia, often a few hours after they have commenced; and consequently, at a time when the knowledge thus obtained leads to the almost instant arrest and cure of the disease.

We would ask Dr. Clutterbuck whether it is of no practical use to discover an apyrexial hepatization; to distinguish between this and a circumscribed pleuritic effusion? to discover whether, in a case of laryngeal disease, the lungs are healthy or diseased? to distinguish between an empyema with or without a pulmonary fistula? to detect a foreign body fixed in the bronchus? to distinguish, in a case of stridulous breathing, where tracheotomy is apparently called for, between tracheal disease and the pressure of an intrathoracic tumor? to detect the existence of effusion into the pericardium? or to discover latent disease of the mucous membrane, parenchyma, or serous structures in a case of typhus fever? We might add an hundred more of such instances.

Let us be clearly understood. We write these remarks for the junior student, who might be deterred from studying an important and now indispensable part of his profession by the

statements above quoted. We seek not controversy with Dr. Clutterbuck. His opinions can only affect the uninformed.

In the next number, Dr. Hope, of whom we wish to speak with the respect which his labors have earned for him, has authorized the publication of a series of diagnoses made by his pupils after a ten minutes' lecture on the most difficult part of medicine, namely, the valvular diseases of the heart. The pupils were inexperienced and, as far as we can learn, availed themselves solely of physical diagnosis. Their conclusions in thirteen out of fifteen cases were correct; "although they had, amongst others, to deal with the rare diseases of the pulmonic orifice."

That the pupils, after having been instructed in Dr. Hope's views of the causes and situations of valvular murmurs, should have come to conclusions such as he would have done, is not wonderful; but that these conclusions were correct, we have only Dr. Hope's word for. We shall not examine into the evidence of the conclusions, for we know it to be insufficient; but we object to the whole proceeding as calculated to revive the often repeated and refuted objection to the advocates of auscultation, that they neglect the history of the case and vital phenomena. The following considerations, we wish to impress on the pupils of the Meath Hospital:

First, that the physical signs of valvular disease are not yet fully established; second, that taken alone, they are in no case sufficient for diagnosis; third, that even in organic diseases, the nature and situation of murmurs may vary in the course of a few days; fourth, that all varieties of valvular murmurs may occur without organic disease; fifth, and last, that organic disease of the valves may exist to a very great degree without any murmur whatsoever. Of this assertion, we shall hereafter bring abundant proofs. R. J. Graves and W. Stokes.

All this is advisable and good advice at the present day.

Stokes had already published a small octavo volume of 239 pages, entitled "An Introduction to the Use of the Stethoscope, with Its Application to the Diagnosis of Diseases of the Thoracic Viscera, Including the Pathology of these Various Affections."

He was only twenty-one at the time—another illustration of early maturity. This is the first work on the subject in the English language; for it he received the respectable sum of £70.

While Stokes' name will be forever remembered in connection with Adams-Stokes disease and Cheyne-Stokes breathing, his contributions to medicine are greater than is indicated by the two conditions to which his name is attached; for the English-speaking world, at least, he helped to carry on the work of Graves and to give physical diagnosis the place that it deserves in clinical medicine. This he did through his direct teaching, and also through his magnificent work on "Diseases of the Chest and Aorta," which, for its wealth of observation, its clarity and accuracy of description constitutes a classic in medical literature. It was translated into German soon after its appearance, the translator, Gerhard vom dem Busch, speaking of it as follows:

Since the publication of Laënnec's great work, which formed an epoch in medical history, many valuable treatises have appeared in France and England on the same subject, but none of them can bear comparison with that which has lately emanated from the pen of Dr. William Stokes, of Dublin.

All in all, Stokes must be looked upon as a pioneer in clinical teaching, and the second great cardiologist in the history of medicine, Corvisart being the first.

In yet another direction was the Dublin School a pattern for America. The first Pathological Society in the English-speaking world was established at Dublin in 1838, with Graves as its first President. The following year, and probably as a direct consequence of Dublin's example, a Pathological Society was organized in Philadelphia. This is not the one now existing, which was not born until 1857. On some other occasion, I hope to give an account of the earlier society, of the existence of which I was ignorant until some years ago I found it mentioned by Pennock in his edition of the works of James Hope, and was led to

trace its short career through the medical journals and other publications of the day.

I have said nothing, so far, of Corrigan and of Cheyne, who are also luminaries in the Irish galaxy, but who do not rank with Graves and Stokes in influence upon American medicine. Both were unusual men, nevertheless. Corrigan, by his article on "Permanent Patency of the Aortic Valves" (*Edinb. M. J.*, 1832) has given us an example of a classical essay produced by a man who had a hospital of but six beds to supply him with the necessary material. Although not the first to describe this disease,—the French claim that honor for Vieussens; the English, for Cowper or Hodgson,—his account is by far the best; and justice is not violated by preserving his name in connection with the disease. Corrigan also gave the first description of chronic fibrosis of the lung, which he called cirrhosis, in analogy to Laënnec's cirrhosis of the liver, preferring, as he said, to "add an additional fact, rather than a new name, to our science."

Of Cheyne—he of Cheyne-Stokes breathing—little need be said with respect to the relation of Irish to American medicine. He was a good observer, but preferred a large and lucrative practice to teaching and medical writing. In consequence, he had an extraordinary income during the most active ten years of his life. Then he broke down physically, and apparently mentally, giving himself over to fantastic religious and philosophical speculations.

Much might be written of the Dublin surgeons during the Golden Age of Irish Medicine—of Colles; of Adams; of Carmichael; of Macartney; of William Wallace, who introduced the use of potassium iodide in syphilis; and of Francis Rynd, who first employed hypodermic injections for the relief of pain, using the gravity method. They were all conspicuous men, but of less direct influence upon teaching and practice in this country than their more highly gifted medical contemporaries.

Many Americans must have gone to

Dublin to sit at the feet of Graves and Stokes; but although I have searched diligently, I have found definite records of only four. I am speaking, of course, of the formative period of medicine in this country. In later times, the Rotunda Hospital has probably attracted a goodly number, more for the sake of gaining a wider experience than for the purpose of getting inspiration.

The first to visit Dublin was apparently John Y. Bassett (1804-1851), of Huntsville, Alabama, whom Osler, in one of his most charming essays, has rescued from oblivion as the "Alabama Student." Bassett was a rare personality—fearless, intelligent, philosophical—who must have had a powerful influence upon his contemporaries, but who died too young and wrote too little to have made a permanent impression upon American medicine. He went to Europe in 1836, visiting Edinburgh, Glasgow, Belfast and Dublin, where he must have come under the influence of Graves and Stokes, and where it appears he thoroughly enjoyed himself. After leaving Dublin he spent two miserable weeks in London, made miserable by the atrocious weather. The fortnight ended, he "shook the mud of England from his feet at Dover, and departed, hoping never to be soiled with it again." He went to Paris, and although he does not mention it, probably attended classes at La Pitié with Bowditch, Jackson, Oliver Wendell Holmes, Shattuck, Gerhard and Stillé.

It is regrettable that we know so little of Bassett. His wonderful "Credo," one of the finest things of its kind in medical literature, stamps him as a man of the loftiest ideals. This "Credo" deserves to be quoted:

I do not say that the study of nature, human and comparative, as far as it relates to medicine, is an easy task. Let anyone undertake a foreign language, and, when he thinks he has mastered it, let him go into its native country and attempt to use it among the polite and well-informed. If he succeed, let him go among the illiterate and rude, where slang is current; into the lunatic asylum, where the vernacular is babbled in broken sentences in the mouth of an idiot, and

attempt to understand this. Should he again succeed, he may safely say that he knows that language. Let him then set down and calculate the cost in labor, time and talent; then square this amount, and go boldly into the study of physiology; and when he has exhausted his program, he will find himself humbly knocking at the door of the temple, and it will be opened. For diligence, like the vinegar of Hannibal, will make a way through frozen Alps. It is the "Open Sesame" of our profession. When he is satisfied with the beautiful proportions of the interior, its vast and various dimensions, the intricate and astounding action of its machinery, obeying laws of a singular stability, whose very conflict produces harmony under the government of secondary laws—if there be any secondary in nature!—when he is satisfied (and such are not satisfied until informed), he will be let to his ultimate object, to take his last lesson from the poor and suffering, the fevered and phrenzied, from the Jobs and Lazaruses,—into the pest-houses and prisons, and here, in these magazines of misery and contagion, these Babels of disease and sin, he must not only take up his abode, but following the example of his Divine Master, he must love to dwell there;—this is pathology.

When such an one reenters the world, he is a physician. His vast labors have not only taught him how little he knows, but that he knows this little well. Conscious of this virtue, he feels no necessity of trumpeting his professional acquirements abroad; but, with becoming modesty and true dignity, which constitute genuine professional pride, he leaves this to the good sense of his fellow citizens to discover.

Many of us fail because "the world is too much with us." For the lonely "Alabama Student," this was evidently not the case. Writing in April, 1851, shortly before his death, he says: "This world has never occupied a very large share of my attention or love. I have asked but little of it, and got very little of what I asked." He died at forty-six, his work and mission unfulfilled, but assured of perpetual renown through the labor of love of Osler's understanding spirit.

Perhaps no one was more influenced by his Dublin teachers than Alfred Stillé,

the last representative of a vanishing epoch whom I have seen with my own eyes. Born in Philadelphia in 1815, of Swedish ancestry, he was graduated at the University of Pennsylvania, and had the good fortune (or the best of luck, as Osler says) to become House Surgeon at Blockley under W. W. Gerhard. He also studied with Pennock, a man whom he found of finer character, though possibly less intellectual, than Gerhard. Under these two physicians, Stillé saw typhus in Blockley. Afterwards he made a special study of typhoid fever in the wards of Louis, of Paris, and had the opportunity, also, of observing typhus with Vulpes in Naples, Tweedie in London, Allison in Edinburgh, and Graves in Dublin. Graves made a profound impression upon him, and no doubt helped to determine his future career, sharing this influence in some degree, with that idol of American students—Louis, of Paris. Stillé's writings contributed to make Gerhard's differentiation between typhus and typhoid accepted in Europe. Probably his greatest work is his essay on "Cerebrospinal Fever," based on the study of a virulent epidemic at Blockley Hospital.

Another worshipper at the Dublin shrine was Moreton Stillé, brother of Alfred, who, in the tragic unfulfillment of his ambition and in his early death, reminds one of John Y. Bassett. On starting for Europe he wrote:

I go abroad with a determination, made neither hastily nor without reflection, to be up and doing, and to profit by the privilege I enjoy to the utmost. If I know myself, I shall not be content with a place in the crowded middle ranks of the profession.

His plans were to pass some time in Dublin, that he might avail himself of the numerous advantages it then offered to the medical student; but more especially to improve himself in physical diagnosis, "for the cultivation of which many of its teachers were justly celebrated." The remainder of his time abroad, he expected to pass principally at Paris. Unforeseen circumstances caused him to modify his plans, as his last winter was spent in Vienna.

After a winter in Dublin, Dr. Stillé repaired to London. His time had been so profitably and pleasantly spent in the former city that he left it with much regret. The circle of society into which he was admitted was not only refined and intellectual, but, for one constituted as he was, possessed even a higher attraction in the ease and informality of its intercourse. He had also become acquainted with several of its most distinguished physicians, among whom were Drs. Stokes, Graves, Churchill, Hamilton, Law and McDonnell, from all of whom he received many civilities and attentions. He was in particular treated with marked kindness by Stokes, who evidently appreciated his good sense and the earnestness with which he devoted himself to his studies. In his last letter from Dublin, he mentions with pride that for two of his most precious and flattering letters of introduction to Dr. Todd, of London, and Louis, of Paris, he was indebted to Dr. Stokes.

He had been greatly attached to Stokes, in whose society he was much thrown from his daily attendance at the hospital; in his correspondence he gives frequent utterance to an enthusiastic admiration of that great physician's character.

In June, 1849, cholera broke out in the Philadelphia Almshouse—that is, in Blockley. The care of the patients was at first undertaken by the Resident Physicians; but the number of sick so rapidly increased that it was considered necessary by the Poor Guardians to institute a separate cholera service. To this, Dr. Moreton Stillé and Dr. Edward R. Mayer, were appointed in connection with the Medical Board, consisting of the Chief Resident Physician, Dr. Benedict, and the Consulting Physicians of the Hospital, Dr. Page and Dr. Clymer. Ten days after the commencement of his duties, Stillé was himself attacked by cholera and narrowly escaped with his life.

Moreton Stillé's fame rests chiefly on his book on "Medical Jurisprudence," written in collaboration with Francis Wharton. It is the first American work on this subject.

In practice, Stillé failed of the success that it was his ambition to achieve; he died, a rather disappointed man, at the early age of thirty-three. His older brother outlived him nearly forty years.

Meredith Clymer, the fourth of the Dublin students, although born in England, was the grandson of George Clymer, one of the Signers of the Declaration of Independence. He was graduated from the University of Pennsylvania in 1837, at the age of twenty-one, and studied in Europe, at London, Paris and Dublin, from 1839 to 1841. Besides filling several teaching positions in Philadelphia, he was physician to the Philadelphia Hospital from 1843 to 1846, and Consulting Physician until 1852. As an index of his early ripening, I may make mention of the fact that he was Editor of the *Medical Examiner* of Philadelphia in 1838, at the age of twenty-one. He resumed its editorship in 1843, on his return from Europe. He was one of the pioneer neurologists of this country, and after removing to New York, limited his practice to nervous and mental diseases. After a very active career as a practitioner and as a writer, he died in New York in 1902.

And now summing up in conclusion the influence of the Dublin School of Medicine

upon medicine in America, we find that it was exerted in two ways: (a) through the direct contact of the great Irish teachers with American pupils, walking the wards of the Meath Hospital and Sir Patrick Dun's Hospital with them; (b) through the extraordinarily able books and articles from the pens of the Irish masters.

As to the result, it manifested itself primarily in the method of clinical teaching. The practice of Graves and Stokes of having the students examine and follow the cases in the Hospital became the American method. It is the one obtaining everywhere in this country today. Incidentally the Irish School contributed to the popularization of the new methods of physical diagnosis, percussion and mediate auscultation—methods brought back to this country in the main from Paris by a group of brilliant young men from Boston and Philadelphia. It is quite probable that the earliest and strongest interest in the use of the stethoscope in this country was aroused by the famous essay of Stokes.

In the vivid consciousness of our obligations to Edinburgh, to London, to Paris, to Vienna and to Berlin, let us not forget the more modest, yet important debt we owe to Dublin.



# THE HISTORY OF PULSE TIMING WITH SOME REMARKS ON SIR JOHN FLOYER AND HIS PHYSICIAN'S PULSE WATCH

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IT is surprising to note how long it formerly required for exact methods or instruments to be adopted by the medical profession. At present it seems that the reverse is true. Too soon they are adopted and only too soon we find their limitations.

The history of pulse timing presents many details of great interest in this connection. Today the physician as represented in art often is in the act of taking the pulse with or without his watch in his hand, somewhat as in the old art he is seen looking at or holding a urinal.

In that great city of old, in Alexandria, was made the pocket water clock with which Herophilus, one of the greatest doctors of all times, first counted the pulse. Herophilus,<sup>1</sup> the pupil of Praxagoras, describes with excessive detail and refinement the characters of the pulse. His water clock was called a clepsydra. He compared the variations of the pulse to musical rhythms and gave them specific names, such as a goat-like or bounding pulse, i.e., "pulsus capricans" or dierotus, a name that still exists. He recognized the significance of pulse variations as a guide to the general condition of the body.<sup>2</sup>

Praxagoras of Cos, the teacher of Herophilus, was the first physician to use the pulse as an aid to diagnosis.

William Harvey also used a watch for counting the pulse rate according to Prof.

E. von Leyden.<sup>3</sup> Prof. C. Binz<sup>4</sup> claims that the German theologian, Cardinal Krebs of Cues<sup>5</sup> (1401-1464) suggested the use of a watch for timing the pulse. The cardinal is also known under the name of Cusanus. Singer<sup>6</sup> points to the following interesting facts about Nikolaus. He made a fruitless attempt to reform the calendar and his philosophical bias is set forth in his book "De docta ignorantia," which has nothing to do with the absurdity of erudition as its name might be thought to imply, but concerns itself with acknowledged ignorance, i.e., with the inability of the human mind to conceive the absolute or infinite. His theoretical views led him to a belief that the earth is moving, though he attained to no genuine heliocentric theory. He was a real experimenter and he records a careful experiment on a growing plant—afterward pirated by the seventeenth-century writer van Helmont—proving that it does absorb something of weight from the air. This is the first biological experiment of modern times, and incidentally the first formal proof that the air has weight. For timing the pulse he suggested the use of a water clock. Luciana,<sup>7</sup> the Italian physiologist, claims that Cusanus in 1565 was the first to use a watch to record the rate of the pulse. ?

Galileo counted his own pulse in testing the time of a pendulum's vibration. This led him to the idea of counting the rate and variations of the pulse by means of

<sup>1</sup> Binz. *Deut. med. Wchnschr.*, 1898, xxiv, 640.

<sup>2</sup> For interesting data on his life and works, see Walsh's *Old-Time Makers of Medicine*, New York, 1911, p. 336.

<sup>3</sup> Singer, C. *Mediaeval Contributions to Modern Civilization*. Edited by F. J. C. Hearnshaw. London, 1921, p. 146.

<sup>4</sup> Luciana. *Human Physiology*. Translated by Welby. 1911, i, 264.

<sup>1</sup> Marcellus. *De pulsibus*, c, ii, Edit.

Schone. *Basler Festschrift*, 1907, p. 463.

Schmidt. *Kulturbist. Beitr.*, Leipzig, 1912, ii, 45, 101.

Bursians. *Jahresb.*, 1912, Abt. 1-2, 1-3.

<sup>2</sup> Marx, K. F. H. *Ein Beitrag zur Geschichte der Medizin*, 1838, viii, 104.

<sup>3</sup> Von Leyden. *Deut. med. Wchnschr.*, 1898, xxiv, 640.

a pendulum, somewhat as a metronome is used to check the time of music. This apparatus for timing the pulse was welcomed by physicians and was long in general use under the name of Pulsilogia. Sanctorius was the first to give diagrams of the Pulsilogia in his book. Three of these diagrams have been reproduced by J. J.

Fahie in his most interesting article on "The Scientific Works of Galileo," in Charles Singer's "Studies in the History and Method of Science," 1921, ii, 209.

Sanctorius,<sup>8</sup> or Santorio Santorio (1561-1636), a Paduan professor, described a pulsilogium or pulse-clock which he invented. This is also described in his commentary on the first book of the canon of Avicenna (Venice, 1625).

Kepler, in 1600, counted the pulse as a method of timing astronomical phenomena.

Théophile de Borden<sup>9</sup> (1722-1776), the founder of the Vitalistic School of Montpellier, developed a very complete classification of the pulse. He describes the pulse as critical, non-critical, simple critical, compound critical, nasal, tracheal, gastric, renal, uterine, seminal, etc.

Sir John Floyer<sup>10</sup> (1649-1734) was one of

<sup>8</sup> Sanctorius. *Methodus Vitandorum Errorum in Arte Medica*. Venice, 1602.

<sup>9</sup> Borden. *Recherches sur le pouls*. 1756, 1758.

<sup>10</sup> For details of his life see: Woods. *Athenae Oxon.*, 1721, ii, 979; Harwoods. *Litchfield*, 1806; Haller. *Bibliotheca medicinae practicae*, iv, 10; *Gentleman's Magazine*, March, 1734.

the most original physicians of his time. He graduated at Oxford, practiced as a physician at Litchfield and was knighted in 1686. Samuel Johnson, the lexicographer, was by the advice of Floyer sent to be touched by Queen Anne for the "evil."

Floyer's work "The Physician's Pulse Watch" is his most important writing.

He was the first to make regular observations on the rate of the pulse, counting the number of beats in a minute by the watch.

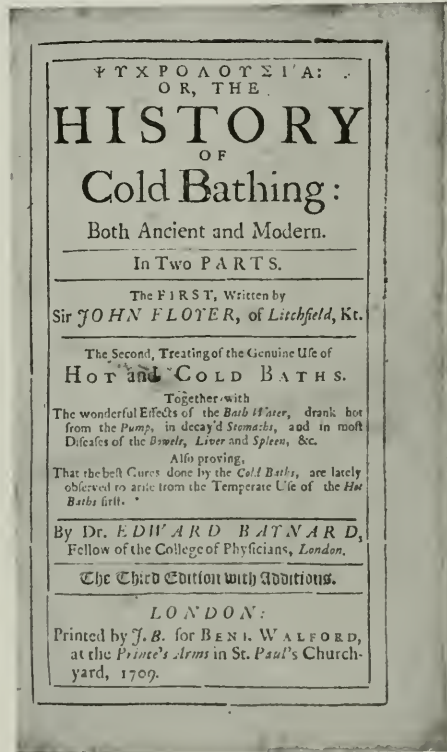
Floyer states in his preface: "I have for many years tried pulses by the minute in common watches and pendulum clocks and then used the sea-minute glass such as is employed to test the log." He describes the pulse of age and youth, pregnancy, exercise and sleep. He tells how diet, blisters and the weather affect the pulse.

Floyer was the first to make regular observations upon the rate of the pulse, since the days of Galileo

and Sanctorius. Before his time, though other points connected with the pulse had been studied very carefully, the rate of the heart had been neglected. The ordinary watch used in Floyer's time had a single hand only. It recorded the hours, neither minutes nor seconds. His "Physician's Pulse Watch" ran only for one minute.

Floyer's method of using a watch to time the pulse was taken up by Louis,<sup>11</sup> the famous French clinician, and then

<sup>11</sup> Louis. *Généralités sur l'enseignement de la médecine clinique*. 1831.





through the efforts and influence of the great Dublin school of clinicians the watch associated with pulse timing came to be of common use in the medical practice.<sup>12</sup>

Floyer's "The Physician's Pulse Watch" consists of two volumes, full of interesting details.

Sir William Osler speaks of Floyer's book in the following words:

The doctrine of the pulse reached such extraordinary development that the whole practice of the art centered around its different characters. There were scores of varieties, which in complication and detail put to confusion the complicated system of the old Graeco-Roman writers. The basic idea seems to have been that each part and organ had its own proper pulse, and just as in a stringed instrument each chord has its own tone, so in the human body, if the pulses were in harmony, it meant health; if there was discord, it meant disease. These Chinese views reached Europe in the seventeenth and eighteenth centuries, and there is a very elaborate description of them in Floyer's well-known book. And the idea of harmony in the pulse is met with unto the eighteenth century.<sup>13</sup>

Floyer's work on asthma gives the first account derived from dissection of the condition in the lungs known as emphysema. This observation was made on a broken-winded mare. He clearly distinguished from it spasmodic asthma, a disease from which he himself suffered, and considered it due to a "contraction of the muscular fibers of the bronchia." He was also interested in the study of prophecy, and

<sup>12</sup> Mitchell, S. Weir. *The Early History of Instrumental Precision in Medicine. Trans. Cong. Amer. Phys. and Surg.*, 1892, ii, 179.

<sup>13</sup> Osler. *The Evolution of Modern Medicine*, 1921, p. 32.

was the author of the first book written on the diseases of old age. He advocated cold bathing and had built a cold bath in the neighborhood of Litchfield. His book on cold bathing is full of interest. The title page of this book, which is in my possession, is reproduced on p. 98. Floyer's writings are as follows:

1. *The Touch-stone of Medicines*. London, Vol. i, 1687, Vol. ii, 1690.
2. *Preternatural State of the Animal Humours, described by their Sensible Qualities*. London, 1698.
3. *An Enquiry into the Right Use of Baths*. London, 1697.
4. *A Treatise of the Asthma*. London, 1698.
5. *The Physician's Pulse Watch*. Vol. i, 1707; Vol. ii, 1710.
6. *A Letter on Bathing in Dr. Joseph Browne's Account of Cures Performed by Cold Baths*. London, 1707.
7. *A Letter Concerning the Rupture of the Lungs*. London, 1710.
8. *The Sibylline Oracles*, translated from the Greek. London, 1713.
9. *A Vindication of the Sibylline Oracles*. London, 1715.
10. *Two Essays, on the Creation, and on the Mosaic System*. Nottingham, 1717.
11. *An Exposition of the Revelations*. London, 1719.
12. *Exposition and Vindication of Esdras*. 1722.
13. *An Essay to Restore the Dipping of Infants in their Baptism*. London, 1722.
14. *Medicina Gerocomicæ; or, the Galenic Art of Preserving old Men's Healths*. London, 1724.
15. *A Comment on Forty-two Histories Described by Hippocrates in his Epidemics*. London, 1726.
16. *Essay to Prove Cold Baths both Safe and Useful*. London, 1702.
17. *Memoir in Philosophical Transactions*, Vol. xxi.
18. *Memoir in Philosophical Transactions*, Vol. xxiii.
19. *The History of Cold Bathing; both, Ancient and Modern*. London, 1709. 3rd Edition.



## EDITORIALS

### SELECTIONS FROM VESALIUS, SHOWING THE IMPROVEMENTS INTRODUCED INTO THE SECOND EDITION OF THE FABRICA (1555)

The following extracts which are kindly communicated to the ANNALS by Colonel Fielding H. Garrison, are translations of the original "Physiological Experiments" which were made by Vesalius in the years 1543-1555, and inserted by him in the text of the second edition of the "Fabrica" which was published in the latter year (1555).

Colonel Garrison points out that as they are the only physiological experiments of any consequence between Galen and Harvey, they are of the utmost importance. Sir Michael Foster refers to them in his "Lectures on the History of Physiology," but this is, we believe, the first time they have been published in English. The Vesalian observations on craniology, herewith included, are also unique and the first of their kind, although the causes assigned for dolichocephaly and brachycephaly are, of course, fanciful. EDITOR.

#### I

#### OBSERVATIONS ON ETHNIC ASPECTS OF CRANIOLOGY

Now Hippocrates seems to have attributed the cause of the shape (of the head) most familiar to us to midwives and the nurses; for he states that oblong heads were considered beautiful by some, and that these people had therefore compressed them so that they finally had been given an oblong shape by Nature; likewise it is a fact that most nations claim for themselves a peculiar shape of the head. The

heads (or crania) of the Genoese and more so those of the Greeks and Turks have almost the shape of a sphere. To obtain this shape (for many of them consider it elegant and well adapted for the cloth with which they (The Turks) envelop their heads) the midwives, at the request of the mothers, sometimes lend their aid. The Germans are seen to have usually a compressed occiput and a broad head, because as children they lie on their backs in their cribs with their hands tied to both sides of the same almost as far as their swaddling clothes reach. The Belgians have more oblong heads than the others, because the mothers prefer to let their infants, wrapped in swaddling clothes, sleep on their sides and temples. However this may be, the anatomists consider that shape of the head the normal one which approaches nearest to an oblongated sphere, when it is longer from the front backward. All other shapes differing from this are not considered normal. (Page 23, Lines 12-29.)

#### II

#### EXPERIMENTS ON THE PHYSIOLOGICAL EFFECT OF NERVE-SECTION

If you want to see whether the nerve substance or the sheath which surrounds it supplies force to the animal, you will do well to remove the skin of the femur, the tibia and the foot, and after the femur is freed from the muscles attached at both ends, look for the fourth nerve supplying

the femur. When you have removed its sheaths from the substance of the nerve, you can judge how the toes and the foot itself are set in motion and how the nerve itself exercises the functions which had devolved upon it for the purpose. Now if some one had decided to explore the function of the spinal cord, he would see, how, after its injury, the parts affected by the lesion lose their sensibility and motion. Let him take a dog, and tie his trunk so that his back and neck are extended in such wise that a part of the spine in the vertices may be cut with a large knife and finally the spinal cord may be exposed at will. There is nothing easier than to see that the motion and the feeling of those parts affected by a section or lesion are abolished. (Page 810, Lines 22-34.)

## III

PERSISTENCE OF LIFE AFTER EXCISION OF  
SPLEEN (SHOWING THAT THIS PARTICULAR  
DUCTLESS GLAND IS NOT  
NECESSARY TO LIFE)

But the function of the liver, as well as that of the spleen or that of the kidneys or the bladder can hardly be studied any better in vivisection than in that of corpses, unless one wants to cut out the spleen of a live dog, as I have sometimes done, and watch the dog for days. Thus I have also sometimes cut out the kidney, but the treatment of the wound is more troublesome, than the information gained by the operation is pleasant. (Page 820, Lines 26-31.)

## IV

COLLAPSE OF LUNGS ON PUNCTURE OF CHEST

From this it follows, that the lungs follow the motion of the chest, that when a puncture is made between the ribs into the

thoracic cavity, the part of the lung on the injured side collapses and will no longer move together with the thorax, while the rest of the lung follows the thoracic motion (on its side), but will, however, quickly collapse if one also make an incision on that side of the (thoracic) cavity, and thus the animal dies, as if it were suffocated, even though the thorax may have moved for some little time. (Page 821, Lines 25-31.)

## V

APHONIA FROM LARYNGOTOMY

Then I observe the recurrent nerves attached to the sides of the laryngeal artery (*aspera arteria*), which I sometimes intercept with clamps (noose), sometimes cut through altogether, first from the other side, so that when the nerve is intercepted or cut through, it is clearly noticeable that the voice is half silenced, and when both nerves are injured, that the voice is completely lost; and if I release the clamps, it returns. (Page 823, Line 11.)

## VI

ARTIFICIAL RESPIRATION (AUER-MELTZER  
EXPERIMENT)

In order to revive an animal, an opening in the trunk of the laryngeal artery must be made and there a tube of reed or cane be inserted and inflated, so that the lungs swell and the animal itself somehow draws in the air. With a light inflation the lungs of a living animal swell as wide as the cavity of the thorax will permit, and the heart recovers its strength, and the different movements of the same are beautifully demonstrated. When the lungs have been inflated again and again, you may examine the movements of the heart by sight and by touch, as much as you please. (Page 824, Lines 8-14.)

## THE CUSTODIANSHIP CABINET OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

As in the race or in the individual noble traditions and a good inheritance count for much, so in a profession such as ours a knowledge of its past and emulation of the great men who have advanced it tend to raise its standards and ideals. In a time when the material advances made by medical science are so wonderful and so

through the cult of the past great masters of their art.

In 1910 Dr. Abbe presented Dr. Benjamin Rush's watch to the College, to be held in trust by a Custodian, who should name the person whom he considered most fitted by his eminence in medicine to succeed him in his sacred office. The first Custodian of



THE CASE AND MEMENTOS.

absorbing in their interest, it is of great importance, especially with respect to young men at the outset of their careers, that the noble history of their calling should be familiar to every physician. In England and France great emphasis has been laid on the practical value of the study of medical history and the preservation of the lofty traditions of the profession.

A splendid gift has been given to the College of Physicians of Philadelphia by Dr. Robert Abbe, the distinguished surgeon of New York, which has for its object the cultivation of high ideals among physicians

the Rush Watch was S. Weir Mitchell, who was succeeded by Simon Flexner, who in turn was succeeded by the present Custodian, William H. Welch.

Last spring Dr. Abbe presented to the College a most beautiful glass cabinet designed to contain not only the Rush Watch, but certain other relics of the greatest historical interest. These objects comprised a silver shoe buckle which had been worn by Rush and was presented by his great grand-daughter, Mrs. John Biddle Porter; an inkstand which belonged to Edward Jenner, which was given to the

College of Physicians by S. Weir Mitchell, and a lock of Jenner's hair, the gift of the late Sir William Osler; a small case of surgical instruments which were used by Lord Lister, and presented to Dr. Abbe by Lister's nephew and biographer, Sir Rickman Godlee; a model of a tartrate crystal made with his own hands by Pasteur and used by him in his demonstrations on the nature of tartaric acid. The model was solicited from Professor Calmette of the Pasteur Institute by Dr. Abbe, and by him placed in the Cabinet.

On May 23, 1921, there was a gala evening at the College of Physicians of Philadelphia. Madame Curie was its honored guest and gave to the Custodianship Cabinet through Dr. Abbe an instrument which she and Professor Curie had used in their investigations on radium.

Never will those who were present forget the scene when after a delightful address by Dr. Abbe, the frail, delicate scientist in a few words, spoken with her hand on the instrument, presented the apparatus to the College.

At a meeting of the College on December 7, 1921, Dr. Abbe added to the Cabinet a set of test tubes used by Lister in his

experiments on putrefaction, which had been given to him by Sir Rickman Godlee.

Dr. Abbe has placed in the Cabinet some most beautifully bound books containing autographs, letters, portraits, and biographic matter pertaining to the famous persons whose relics are enclosed in the shrine. He has also endowed the Cabinet with a large sum of money.

Many Americans have visited the College of Physicians of London and have beheld with interest the famous Gold-Headed Cane, which after having been carried successively by Radcliffe, Mead, Askew, Pitcairn, and Baillie, was presented by the latter's widow to Sir Henry Halford, who deposited it in the Hall of the College. Its autobiography, composed by MacMichael, is familiar to most physicians who are interested in the history of their profession. In the future Americans may gaze with equal pride on the splendid collection which the energy and generosity of Dr. Abbe has initiated, and which illustrates so beautifully the unbroken traditions which bind our profession in this country to its ancestors in England and in France.

FRANCIS R. PACKARD.

### THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE

The International Society of the History of Medicine was founded in Paris on October 8, 1921. It has for its object the study of the History of Medicine in all its branches and the coordination of research work in these subjects.

A Permanent Committee has been established in Paris consisting of delegates appointed by Sections of the Society in various countries.

The Society meets in congress every three years, and it has been decided to hold the next Meeting in London from July 17 to 22, 1922. Meetings will be held at the Royal Society of Medicine, the Royal College of Physicians, the Royal College

of Surgeons, the Wellcome Historical Medical Museum and elsewhere. There will be special exhibitions of objects connected with the history of medicine, surgery and the allied sciences. The loan of any objects of special interest from members will be greatly appreciated by the Executive Committee.

Communications are invited from members on subjects connected with the history of medicine in all its branches.

The following subjects have been suggested for communication and discussion, but are by no means intended to exclude papers on any subject of general interest in connection with the history of medicine:

1. The principal seats of epidemic and endemic diseases in the Occident and Orient in the Middle Ages, including Plague, Gangrenous Ergotism, Leprosy and Malaria.

2. The History of Anatomy.

3. The revival of medical knowledge during the sixteenth century.

Communications should be addressed to: The General Secretary, Dr. J. D. ROLLESTON, 21, Alexandra Mansions, King's Road, London, S.W. 3.

The subscriptions are as follows:

Members of the International Society of the History of Medicine (including annual subscription), £1 12 0

Members of the London Congress only, £2 0 0

Associate (student or relation of a member), £0 8 0

Remittances for subscriptions by money order or cheque crossed Lloyd's Bank should be sent to: The Treasurer, W. G. SPENCER, Esq., O.B.E., F.R.C.S., 2, Portland Place, London, W. 1.

The officers of the society are: President of Honor: SIR NORMAN MOORE, Bart., M.D.; Vice-Presidents of Honor: SIR D'ARCY POWER, K.B.E., F.R.C.S.; Professor MÉNÉTRIER; Professor JEANSELME; Dr. TRICOT-ROYER; President of Congress: CHARLES SINGER, M.D.; Treasurer: W. G. SPENCER, O.B.E., M.S.; General Secretary: J. D. ROLLESTON, M.D.





CORRESPONDENCE

MARTIAL'S EPIGRAMS RELATING TO MEDICAL PRACTICE AND MEDICAL MEN

Martial (Marcus Valerius Martialis), the celebrated Latin epigrammatist, was born in 43 A. D. Our knowledge of his life is derived only from his writings. His birth-place was in Bilbilis, Spain. He moved to Rome in 64 A. D., one year before the fall of Seneca and Lucan who probably were his first patrons.

Martial died in the seventy-fifth year of his age. His epigrams deal with most of the situations in life and will no doubt be read as long as the Latin language will be understood. They contain a great fund of information regarding the manners and customs of his time and are full of wit and satire.

I have compiled the following epigrams from Martial in relation to the physician and to physic.

The selections in this paper are taken from "The Epigrams of Martial,"<sup>1</sup> translated into English prose, each accompanied by one or more verses translated from the works of English poets and derived from various other sources.

XXX. ON DIAULUS<sup>2</sup>

Diaulus had been a surgeon, and is now an undertaker. He has begun to be useful to the sick in the only way that he could.

Diaulus, late who, void of skill  
 Profess'd the healing art,  
 Now acts, in league with Pluto still,  
 The undertaker's part.

*Bouquet, Dublin, 1782.*

XLVII. ON DIAULUS<sup>3</sup>

Diaulus, lately a doctor, is now an undertaker: what he does as an undertaker, he used to do as a doctor.

<sup>1</sup> Bohn's Classical Library, London, 1865.

<sup>2</sup> Page 38.

Diaule the doctor is a sexton made:  
 Though he is changed, he changeth not his trade.  
 *Wright.*

The Doctor's late, is now the Dismal's lore:  
 What Dismal does, the Doctor did before.  
 *Elphinston.*

XVI. AGAINST ZOILUS<sup>4</sup>

Zoilus is ill: his gorgeous bed is the cause of this fever. If he were well, of what use would be these scarlet coverlets, this bed brought from the banks of the Nile, or this, steeped in the perfumes of Sidon? What but an illness displays such idle wealth? What have you to do with physicians? Dismiss all your Machaons. If you wish to get well, use my bed-clothes.

Zoilus is sick, his rich stuff makes him so:  
 If he were well, what should his scarlets do?  
 His bed from Nile? his hangings dyed at Tyre?  
 He's sick, we may his sottish wealth admire.  
 Dismiss the doctors, the Machaons all,  
 To make him well, for my rug only call.

*Anon., 1695.*

Vainlove is ill: his illness is his bed,  
 Made up of chintz and silks prohibited:  
 Near it an Indian screen and work'd settee,  
 Inflame his fever to a high degree.  
 When he is well, these fopperies are not seen:  
 They make him sick, and give us too the spleen.  
 Dismiss his doctors, and apply my spell;  
 Let him change beds with me, and he'll be well.  
 *Hav.*

XL. ON TONGILIUS<sup>5</sup>

Tongilius is reported to be consumed with a semi-tertian fever. I know the cunning of this man; he has a hunger-and-thirst fever. He is craftily spreading nets for fat thrushes, and throwing out a hook for mullet and pike. He wants strained Caecuban wine, and wine ripened in the year of Opimius; and dark Falcernian which is stored in small flagons. All the doctors have ordered Tongilius to bathe. Fools! do

<sup>3</sup> Page 48.

<sup>4</sup> Page 95.

<sup>5</sup> Page 104.

they think it is a case of fever. It is a disease of the throat.<sup>6</sup>

That Tongelin is feverish, many think;  
I know the man; he wants choice meat and drink.  
Straight for fat thrush and cocks springes are set;  
For pike and carp's employ'd the casting net;  
Purveyance for old Caecuban is made,  
Such as the sound drink sparing and allay'd;  
Bathing, physicians with one voice prescribe:  
To cure his fever, fools, his belly bribe.

*Anon.*, 1695.

#### IX. TO SYMMACHUS<sup>7</sup>

I was indisposed; and straightway you came to see me, Symmachus,<sup>8</sup> accompanied by a hundred of your pupils. A hundred hands, frozen by the northern blast, felt my pulse. I had not then an ague, Symmachus, but I have now.

I droop'd; straight Symmachus to me does hie,  
An hundred quacks bearing him company;  
An hundred frozen hands my pulse did crave;  
Before I had no ague, now I have.

*Anon.*, 1695.

#### XXXI. TO CHARIDEMUS<sup>9</sup>

You are aware that your physician, Charidemus, is the gallant of your wife; you know it, and permit it. You wish to die without a fever.<sup>10</sup>

Knowing thou let'st the doctour have thy wife:  
Thou 'lt die without a fever, on my life.

*Old MS.* 16th Century.

Oft with thy wife does the physician lie,  
Thou knowing, Charidem, and standing by.  
I see, thou wilt not of a fever die.

*Anon.*, 1685.

#### LIII. TO FAUSTINUS, ON ANDRAGORAS<sup>11</sup>

Andragoras bathed, and supped gaily with me; and in the morning was found dead. Do you ask, Faustinus, the cause of death so sudden? He had seen Doctor Hermocrates in a dream.

<sup>6</sup> He pretends to be ill, that his friends may send him dainties.

<sup>7</sup> Pages 224-225.

<sup>8</sup> A physician, who came to visit Martial, accompanied, according to the fashion of those times, by his pupils.

<sup>9</sup> Pages 274-275.

<sup>10</sup> You make no opposition to the physician's proceedings, because you do not wish him to poison you, in order to get you out of the way. Or, if you take things so calmly that you will never be thrown into a fever by feelings of resentment.

<sup>11</sup> Page 285.

Bath'd, supp'd, in glee Andragoras went to bed  
Last night, but in the morning was found dead:  
Would'st know, Faustinus, what was his disease?  
He dreaming saw the quack, Hermocrates.

*Montaigne* (by Cotton), B. 11, ch. 37.

#### LXX. TO MARCIANUS<sup>12</sup>

Sixty summers, Marcianus, and, I think, two more have been completed by Cotta, and he does not remember ever to have felt the weariness of a bed of sickness even for a single day. With resolute, nay uncourteous gesture, he bids the doctors Alcon, Dasius, and Symmachus keep at a distance. If our years were accurately counted, and if the amount subtracted from them by cruel fevers, or oppressive languor, or painful maladies, were separated from the happier portion of our lives, we should be found in reality but infants, though we seem to be old men. He who thinks that the lives of Priam and of Nestor were long is much deceived and mistaken. Life consists not in living but enjoying health.

Cotta has pass'd his threescore years and two,  
And ne'er remembers that he had to do  
With sickness, or yet once laid down his head;  
For a distemper felt a tedious bed:  
But at physicians he durst point with scorn,  
At Dasius and Alcontus makes a horn.  
If like wise men, we do our years compute,  
Raze or subtract the days that do not suit  
With happy life, such as in pain are spent,  
Gouts, fevers sharp, and the mind's discontent.  
We should but children be, that aged seem,  
And hugely they're imposed on, who do deem  
Priam and Nestor many years have told:  
Not who live long, but happily are old.

*Anon.*, 1605.

If I judge right, our good old friend, Sir John,  
Next spring is sixty-three, or thereupon.  
Yet it was never known, I've heard it said,  
That in his life he one day kept his bed;  
Nor ever, but in joke, held out his pulse,  
To Sloane, to Mead, to Wilmot, or to Hulse,  
If from our life's account we should strike out  
The hours we lose by fever or the gout,  
By spleen, by head-ache, every other ill;  
Though we seem old, we are but children still.  
If any think Priam or Nestor old,  
Though o'er the last three centuries had roll'd,  
They're much deceived; for sense and reason tell  
That life is only life when we are well.

*Hay.*

<sup>12</sup> Page 294.



LXXIV. TO A BAD DOCTOR<sup>13</sup>

You are now a gladiator; you were previously an oculist. You used to do as a doctor what you now do as a gladiator.

A doctor lately was a captain made:  
It is a change of title, not of trade.

*Hay.*

XVII. ON THE HAIR OF EARINUS, TO  
AESCLAPIUS<sup>14</sup>

Venerable grandson of Latona, who mitigatest with healing herbs the rigorous threads and rapid distaffs of the Fates, these tresses, which have attracted the praise of the emperor, are sent to thee by the youth, thy votary, as his consecrated offerings, from the city of Rome. He has sent with his sacred hair, too, a shining mirror, by the aid of which his beauteous tresses were arranged. Do thou preserve his youthful beauty, that he may prove not less handsome with his hair short than long.

Thou that with powerful druggs reverest fate's  
Decrees, and eekest out life's shortest dates,  
To thee this youth his vowed hayre doth send,  
Which, with himself, his lord did soe commend:  
His spotless mirrou too does joyne with theise,  
The faythful judge of's face'd takeingst dress.  
Preserve thou his youth's beauty, that less fayre  
He grows not in his short, than longer hayre.

*Old MS. 16th Century.*

XCIV. ON HIPPOCRATES<sup>15</sup>

Hippocrates has given me a cup medicated with wormwood, and has the presumption to ask of me honied wine in return. I do not suppose that even Glaucus was so stupid, who gave his golden armour to Diomedes for armour

<sup>13</sup> Page 387.

<sup>14</sup> Pages 400-401.

<sup>15</sup> Page 440.

of brass. Can any one expect a sweet gift in return for a bitter one? Let him have it, but on one condition that he drinks it in hellebore.<sup>16</sup>

What blest assurance: when my doctor thought  
To get my claret, for his wormwood draught.  
Glaucus of old was not a greater ass,  
Who gave his golden arms for arms of brass.  
But I will send it; if he will agree  
To drink it from the bottle sent to me.

*Hay.*

XCVI. ON HERODES<sup>17</sup>

The doctor Herodes had filched a cup belonging to his patients. Being detected, he exclaimed, "Fool! what need have you of drink?" The doctor from his patient steals his cup, But, caught i' th' fact, says, "Drinke! no not a sup!"  
*Old MS. 16th Century.*

A quack, who stole his patient's cup, did cry,  
Caught in the fact, "What! would you drink, and die?"

*Hay.*

LXXVII. TO MAXIMUS, ON THE DEATH OF  
CARUS, A QUACK<sup>18</sup>

Never did Carus do anything worse, Maximus, than to die of fever; the fever, too, was much in the wrong. The cruel destroyer should at least have been a quartan, so that he might have become his own doctor.

Not a slipp'rier trick e'er by Carus was play'd,  
Than by Fever, who Carus has swept.  
Wicked Fever! a quartan thou might'st have essay'd:  
For her doctor she should have been kept.

*Elpbinston.*

JACOB ROSENBLUM, M.D., PH.D.  
Pittsburgh, Pa.

<sup>16</sup> The presumed specific for madness.

<sup>17</sup> Pages 440-441.

<sup>18</sup> Page 486.



## BOOK REVIEWS

THE DAWN OF MODERN MEDICINE, AN ACCOUNT OF THE REVIVAL OF THE SCIENCE AND ART OF MEDICINE WHICH TOOK PLACE IN WESTERN EUROPE DURING THE LATTER HALF OF THE EIGHTEENTH CENTURY AND THE FIRST PART OF THE NINETEENTH. By Albert H. Buck, B.A., M.D., Yale University Press, New Haven, 1920.

Dr. Buck has written this work in continuation of his previously published book "The Growth of Medicine." The two volumes together constitute an excellent résumé of the most salient features of the history of medicine from the earliest time to the beginning of the nineteenth century.

The arrangement of the material is not strictly chronological as in a formal history; Dr. Buck preferred to seize certain outstanding points of historical or personal interest and write of them, making no attempt to cover the entire field. This, while adding greatly to the interest in the perusal of the book, necessarily puts the work in a very different class than the histories of Garrison or Baas or the more expansive volumes of Haeser and Sprengel. Dr. Buck's work will be read with pleasure by many and will stimulate its readers to further research into medical history. It takes up a particularly interesting epoch, that in which the great French school was at its apogee, with the Viennese school as a formidable rival.

The author gives sketches of the personalities of the great masters of medicine who dominated these schools, with brief extracts from the writings of some of them, to illustrate their methods of thought and work. The first chapter is devoted to Théophraste Renaudot, and Dr. Buck presents him altogether in the favorable light in which he was painted by his eulogist, Gilles de la Tourette, disregarding what he terms the

"disgraceful attack" of the Faculté de Médecine of Paris, under the guidance of Gui Patin, its Dean. It is hard to form a just judgment in such a controversy but the reviewer inclines strongly to the view taken by Réveillé-Parise and Triaire, the most recent editors of the Patin correspondence, that though the personalities indulged in by the acrimonious Dean were undignified and wrong, yet the main contention of the Faculté was right. Renaudot was a journalistic tool, what we would now call a "propagandist" who wrote and edited a gazette in support of the despotic government of Richelieu. He also ran a *mont de piété*, or pawnshop, an intelligence office and a dispensary, ostensibly, for the benefit of the poor. The court of the Parliament of Paris supported the Faculté in its contention with him and ordered him to cease his enterprises.

He had against him the verdict of his colleagues and of the law, and was supported solely by a despotic government, which made use of his journalistic abilities, and used his other undertakings in an effort to break down the privileges of the corporation of medicine, one of the great and powerful bodies whose special rights and exemptions were a constant source of irritation to the cardinal who sought to be all-powerful in France. Concerning the other great men, referring to whom Dr. Buck has chosen to illustrate the development of medicine in the period he considers, there can be no adverse criticism of the opinions he advances. Beginning with Reil, Hufeland, Boerhaave and von Haller, he discusses the careers of the most noteworthy leaders in the development of scientific medicine down to the time of Trousseau and Louis, with much interesting information on the

hospital and teaching facilities in England and on the continent. We could wish that he had devoted more space to a fuller account of the influence of the schools of London and Paris on the development of American medicine. John Morgan, William Shippen, Jr., Benjamin Rush, and Philip Syng Physick, the founders of the first medical school in the United States, all studied in London and Edinburgh. Dr. Buck speaks somewhat doubtfully as to whether John Hunter ever received an American into his house as a pupil, yet Physick certainly lived with him for some time in this capacity. Later the tide of American medical students turned to France. Jackson, Gerhard, and many others returned to their country full of the knowledge they had imbibed from Louis and Trousseau and their associates. Dr. Buck refers briefly to this and to the influence of the Vienna school on America. Let us hope that some day he may develop the subject more fully.

The chapters which deal with the great French physicians and surgeons of the Revolutionary and Napoleonic period are truly valuable contributions to medical history. Corvisart, Napoleon's physician, was not only a man of great scientific ability, but also of most attractive personality. He so thoroughly appreciated the value of percussion as a method of diagnosis in diseases of the chest, that in 1808 he published a translation of Auenbrugger's book, which had been published in 1763, containing his description of the procedure. But so great was his honesty and modesty that in his preface he distinctly disclaims any credit for the discovery of this invaluable procedure, although in his publication he put forth so much original matter that he might have easily brought forth the book as an original composition of his own. There are also sympathetic chapters on Larrey and Desgenettes, the great surgeon and the great physician of Napoleon's armies. It is to be hoped that this book will be widely read, especially by medical students or young physicians commencing

practice. It will not only be of interest from the historical point of view, but will also aid them to draw valuable lessons from the history of their profession.

FRANCIS R. PACKARD.

HENRY QUIN, M.D., PRESIDENT AND FELLOW OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND, AND KING'S PROFESSOR OF THE PRACTICE OF PHYSIC 1718-1791. BY T. PERCY C. KIRKPATRICK, M.D. M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. University Press, Dublin, 1919.

This biographic sketch of a man who was one of the best known physicians of his time in a city of no mean medical standing is chiefly of interest to us because of the glimpses given in it of contemporary local medical affairs. Henry Quin was born in Dublin in 1717 or 1718 and practiced medicine with great success in that city until his death in 1791. After graduating from Trinity College, he received the degree of bachelor of medicine from Dublin University and then spent some years studying medicine in Italy, returning to his native city in 1749 with the degree of M. D. from the University of Padua, and in the same year was elected King's professor of the practice of physic in the Medical School of Trinity College. He was elected six times to the presidency of King and Queen's College of Physicians of Ireland.

His marriage to Miss Monck, whose brother had married a daughter of the first Duke of Portland, gave him entry into the highest social circle in Dublin, and his talents as a musician and taste for the arts, together with a very pleasant personality, rendered him universally popular. He acquired the largest and most fashionable practice in the city and at his death left a very considerable fortune. As he wrote nothing and there is no record of his having made any scientific communications even to the society of which he was for so many years the president, his fame was writ in water. It is curious to reflect how many medical men have occupied a similar posi-

tion. Few of this stamp are honored by the resuscitating labors of an able and conscientious biographer one hundred and thirty years after their deaths. During their lives they earn the plaudits and esteem of their generation and the more solid rewards of their industry. When they die they leave no enduring monument to their fame. Are they any less happy and have they not wrought as much for the welfare of their fellow men as those who write innumerable articles for medical journals and read addresses at many meetings of societies? They too die. Their labors are as naught, and in many instances they have not had time to earn the substantial rewards of the routine worker. It is always dangerous to generalize but we are sometimes tempted to wonder whether the man who achieves ephemeral fame by bringing his name into prominence in so-called medical literature, has not lost much when his lot is compared with the hard-working men who never speak and never write but who spend their days in carrying out the highest vocation of the physician and who receive in return the affection and esteem of the immediate circle with which they come in contact. In no profession except the medical is the living dog valued more than the dead lion. Let the best known medical author die, his textbooks die with him. It is sad but it is undoubtedly true. It is rather refreshing from this point of view to read the biography of a medical worthy, dead over a century, whose posthumous laurels must rest entirely on his contemporary fame, and Dr. Kirkpatrick is to be congratulated on the able manner in which he has performed his task.

FRANCIS R. PACKARD.

EARLY SCIENCE IN OXFORD. Part I. Chemistry. By R. T. Gunther. Oxford, Science Laboratories. 1920.

This is the first of a series of volumes in which it is proposed to relate the early history of the various sciences at Oxford. Thus Part II will deal with Mathematics, Part III with Astronomy, and others will follow.

The project was forwarded by the exhibition which was shown at the Bodleian Library in 1919, in which Sir William Osler took such a deep interest. Pictures of the numerous early scientific instruments, of which there are such interesting collections at Oxford with a catalogue résumé, will form prominent features of the Parts as they appear.

Beginning with Roger Bacon, who was the first great scientific teacher at Oxford (and it was many years before any name stands out as his successor), Dr. Gunther, after devoting a few pages to his memory, describes the "spicaria" or apothecary shops of which there were a number in Oxford, and figures some of the pottery in which the drugs were kept which is preserved in the Ashmolean Museum. In the early years of the seventeenth century, the study of Chemistry began to excite interest in Oxford. The little group of scientific men who formed the nucleus of the Royal Society had begun to hold meetings in London in 1645, but the civil commotions of the time caused most of them to go with other Royalists to Oxford in 1647.

Among the most zealous members was the Honorable Robert Boyle, the most distinguished physicist of his time. Others were John Mayow, the first to prove that air was a mixture of two kinds of gases, one of which was essential to life and combustion, which he named spiritus nitro-aereus, and which we now know as oxygen; Christopher Wren, the famous architect, and John Locke, the philosopher.

Dr. Gunther gives an interesting account of the establishment of the first chemical laboratory at Oxford, and of the progress of the study and teaching of chemistry during the eighteenth and early years of the nineteenth century. There are a number of figures illustrating early physical and chemical apparatus which add to the value of this most modest but interesting volume.

FRANCIS R. PACKARD.

STUDIES IN THE PALEOPATHOLOGY OF EGYPT. By Sir Marc Armand Ruffer, Kt. C.M.G., M.D. Edited by Roy L. Moodie, Ph. D. The University of Chicago Press. 1921.

Sir Armand Ruffer rendered most valuable services to the British government and the people of Egypt by his services as an administrative officer and by the immense amount of research work which he carried out or stimulated others to do in the indigenous diseases of that country. As a man of the widest culture and the most human sympathies he won the esteem and affection of all his colleagues, and his untimely death in 1917 was followed by many spontaneous tributes to his character and abilities, and to the good he had accomplished.

Some eight or nine years before his death he began the study by histological methods of Egyptian mummies. The only previous essay in this direction was made by Professor Looss of Cairo, who Ruffer says he heard had shown the striation of some mummified muscle fibers. Ruffer was certainly the pioneer in demonstrating by microscopic sections the structures of the tissues in the various organs and in the blood-vessels, as well as in the several varieties of muscle. The short article in which he describes his method is the first of the papers published in the "Studies in the Paleopathology of Egypt" and was published in the *British Medical Journal* in 1909.

This book is a collection of his papers on the subject, republished posthumously, and rarely has a collection of such interest and value been issued under corresponding circumstances. It is prefaced by an all too brief biographic sketch, as every reader would be glad to have a fuller knowledge of the personality and career of a man whose studies reveal such erudition and charm. Let us hope that at some time we may have a suitable biography of Ruffer, such as that of Pasteur by Vallery-Radot, or of Metchnikoff by his wife.

The rest of the volume is composed of eighteen other papers dealing with various pathological conditions which Ruffer de-

tected by years of labor on mummies. One great result of this work is the light thrown on social conditions in ancient Egypt. Thus the "Study of Abnormalities and Pathology of Ancient Egyptian Teeth" contains a great amount of information on social hygiene and dietetics as does also the "Study of The Physical Effect of Consanguineous Marriages in the Royal Families of Ancient Egypt." The latter, indeed, is a valuable study of marriage between the offspring of blood relations even in the present time.

An especially interesting paper is "On Arterial Lesions Found in Egyptian Mummies (1580 B.C.-525 A.D.)," which was published in 1911. Ruffer found a strikingly large number of instances of calcification or atheroma of the vessels in the mummies he examined and admits that he is at a loss to explain its prevalence among the ancient Egyptians because the usual determining factors were absent from their lives. Syphilis did not exist so far as is known among them. They did not use tobacco, and they were not a drinking race. Their method of living did not subject them to much wear and tear, as they were not in the habit of working hard either mentally or physically. They did eat considerable heavy meat, but their diet was chiefly vegetables. Lastly they did not indulge in strenuous muscular exercise.

In a delightful study "On Dwarfs and Other Deformed Persons in Ancient Egypt," Ruffer proves that rickets and achondroplasia existed in Egypt some thousands of years before the Christian era, and that the deformities characteristic of Pott's disease and talipes equino-varus were put on record about four thousand years ago.

In "Histological Studies on Egyptian Mummies" there will be found exhaustive studies of all the organs and tissues and a concise but most illuminating description, based on careful necroptic studies, of the various processes employed by the embalmers to preserve the dead. Heretofore, attempts to elucidate these processes have

generally been based on historical or archeological research, but Ruffer has gone at the subject from a purely pathological standpoint.

There is not a single paper in the volume that is not up to the highest standards as a model of scientific research, and the subjects are presented in the most delightful style, a perfect model of scientific matter presented in the clearest way. The book is profusely illustrated with appropriate and well-executed pictures. The American Editor, Dr. Moodie, is to be congratulated and thanked not only by students of Egyptology but also by the medical profession for the careful supervision and zeal he has brought to what was evidently a labor of love.

FRANCIS R. PACKARD.

HISTORY OF MEDICINE, with Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A. B., M. D., Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C. Third Edition, Revised and Enlarged Octavo of 942 pages with 257 portraits. W. B. Saunders Company, Philadelphia and London. 1921.

It is a pleasure to welcome the third edition of Lieutenant-Colonel Garrison's splendid work. In spite of the disturbed condition of the world since 1914 much research work has been carried on in medical history and the results have been incorporated by Garrison in his book, as well as some additional biographies. The special bibliographies have been revised and considerably enlarged. The book is now so well known and generally used that a description of its features is hardly necessary. A hasty comparison with its predecessors in the same field will suffice to show its superiority over all competitors. In English its nearest rival is Handerson's translation of Baas' "History of Medicine," a valuable work but marred by much disproportion in the relative treatment of various subjects, and lamentably deficient in its attempt to present a history of the development of medicine in this country.

It altogether lacks the consecutiveness and balance with which Garrison pursues his subject from the earliest time to the present day, and is not at all calculated to stimulate the interest of the student as Garrison's does from start to finish.

The one volume histories of Withington, Dungleison, and Roswell Park are too concise, sketchy, and incomplete to answer the purpose of a reference handbook. The first volume of the translation of Neuburger's "History of Medicine" which was published by the Oxford Press in 1910, is of great value, as far as it goes, but its material is not nearly so attractively arranged as that of Garrison's and it contains no illustrations.

The great histories of the older school, Le Clerc, Friend, Haller, and Sprengel, do not, of course, carry the development of history into the period in which its greatest and most interesting developments began, although they are of much value and interest in their treatment of ancient and medieval periods. Darenberg and Haeser, although of more recent date, do not treat medieval history from the modern point of view. Garrison has not slavishly followed in the path laid out by any of his predecessors. He has not attempted with wearisome prolixity to give all the facts at his command to the reader, but has given the main details,—shown the way in which the whole matter may be studied and known, and thereby stimulated and facilitated further research on the reader's part. He is the up-to-date philosophic historian who spurs others to follow his trail. By this we would not convey that Garrison's book lacks anything as a reference work. It is, indeed, a most complete one, but the author has so arranged his material that the bibliographic and biographic riches it contains can be utilized without their presence in any way marring the continuity of the narration of his history. The excellence of the typographical makeup adds greatly to this arrangement of the material.

FRANCIS R. PACKARD.

THE LIFE OF JACOB HENLE. By Victor Robinson. New York, Medical Life Publishing Co. 1921.

This life of Henle, the first ever written in the English language, might well be considered "A Little Journey to the Home of Jacob Henle." In it we learn that Henle was an illustrious founder of modern medicine, which indeed he was. He made numerous contributions to anatomy, to pathology and natural history. In the realms of these sciences he discovered among many things, tube casts in the urine and the fact that varicocele was always left sided. He described the ampulla of the Fallopian tube and correctly ascribed its functions. He first saw the loop in the uriniferous tubules and it is named for him. Henle's fibrin in the semen is another well-known discovery. He was always a restless and original searcher after truth, in his chosen fields. His "Handbook on Systematic Anatomy" was for years the standard textbook in Germany. To journals he contributed copiously. He, too, edited some and wrote many articles for encyclopedias. He was the typical German man of science in the amount of painstaking hard labor accomplished and in every other traditional way. His contacts with the learned men of his day were fortunate, stimulating and powerful. He knew Metchnikoff and Virchow well. From Müller, the central figure in German medicine of his day, he drew much inspiration and knowledge. He was Müller's assistant for many years. As a medical student Naegele, of the crooked pelvis fame, taught him. He was friendly with Mendelssohn and von Humboldt, and worked for a time in Cuvier's laboratory. In Vienna he was enthusiastically greeted, while on a visit, by the illustrious Rokitan-sky and "the incomparable Hyrtl." He was a great man in a great age. Robert Koch was one of Henle's students and no doubt drew much inspiration from this overflowing font of knowledge. The world owes much to Henle directly and indirectly. The author gives the reader glimpses of the famous man as the carousing student,

at duels and in beer halls, as the friend of publicans; as the serious student in Müller's laboratory, as an ardent worshipper at the shrine of Venus, as a musician and revered teacher and profound worker and investigator in new fields. There are in the book pictures of torchlight processions, with many loud 'hochs' in Henle's honor, of scientific demonstrations to the illustrious von Humboldt, of his courtships, in the first of which the courting was mostly done by the distaff side. He was married twice and happily. His first wife he had educated privately at his own expense before marriage, so that she might better grace his home. He suffered imprisonment for a very trivial political offense and was engaged in several politico-medical intrigues. There is no picture, however, of the patient investigator laboriously dissecting out the uriniferous tubule with a needle in its entirety, with the aid of a simple hand glass.

It is well for every medical man, student as well as graduate, to turn aside occasionally and learn something of the birth of modern medicine and its heroes. Much knowledge of the German development can be had by a perusal of this little book, at least a cross sectional view can be thus obtained in this little volume. It is curious to note that Henle died of sarcoma of the kidney, for he was greatly interested in this organ, and had revealed its minute anatomy for the first time. The style of this life is racy and easy. R. L. PITFIELD.

PARACELSUS. Edited by Sudhoff.

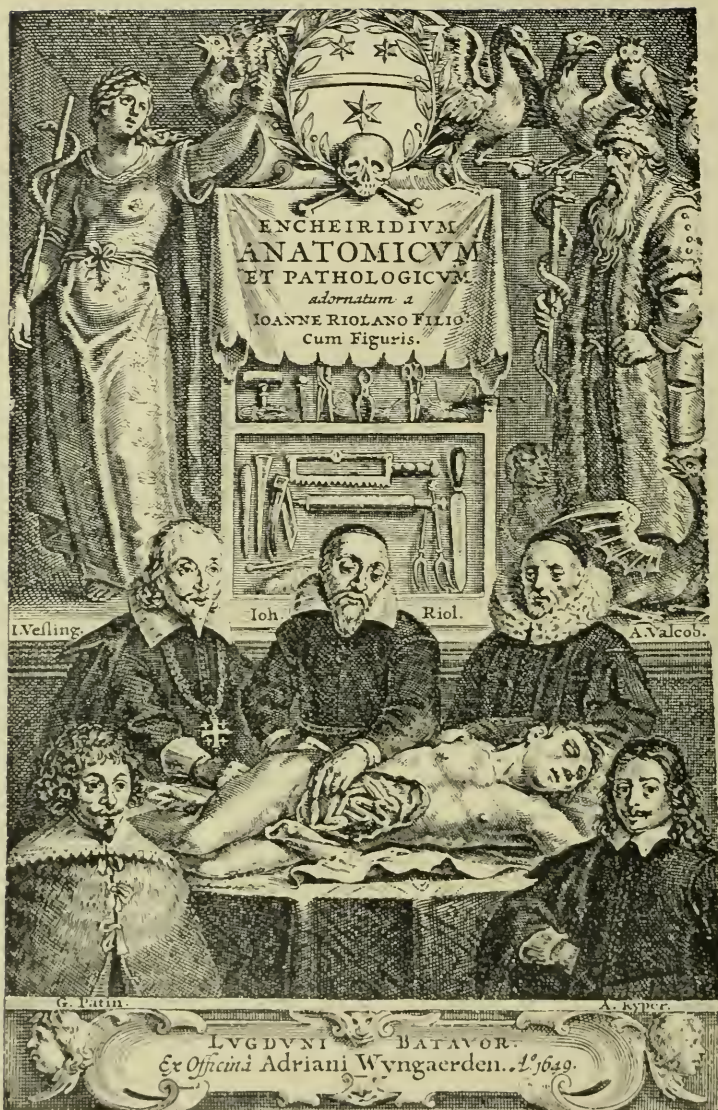
All those interested in the history of medicine will hear with interest and delight that the complete works of Paracelsus will shortly appear in print, edited by the greatest student of his works, Professor Karl Sudhoff, of Leipzig.

The publication will be in fifteen volumes, and is to be sold by subscription. Detailed information concerning it can be obtained by writing to Professor Karl Sudhoff, Institut für Geschichte der Medizin (38 Talstrasse), Leipzig, Germany.





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FRONTISPIECE OF THE MANUAL OF ANATOMY BY JEAN RIOLAN  
 Riolan is giving a demonstration, attended by  
 Johann Vesling, A. Valcob, Guy Patin, and Albert Kyper



# ANNALS OF MEDICAL HISTORY

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## DE STATICIS EXPERIMENTIS OF NICOLAUS CUSANUS\*

By HENRY VIETS, M.D.

BOSTON, MASS.



ABOUT five hundred years ago the world was entering into a period of rebirth after its long lethargy of the Middle Ages. It was a period of beginning mental unrest and experimentalism, both partly ruled by the spirit of adventure. Men were breaking away from narrow, analytical medievalism to synthesize and build up a broad outlook on life. They were no longer satisfied to live a monastic life and spend their years scanning a single manuscript as dependent thinkers. Independence of thought, with its self-conscious freedom, became the watchword of the Renaissance.

We are all familiar with the great figures of both the Renaissance and the Reformation after the year 1500. Fifty years before this date, however, certain men, some of them thinking a century in advance of their time, were laying the foundation stones on which the Renaissance was to be established. One of them, little known in the annals of medical history, was almost the first to break away from the narrowness of the Middle Ages and become a student com-

manding all the then known sciences. Such a man was Nicolaus Cusanus. Only one figure of importance to science appears before his time in the Middle Ages, Roger Bacon, who, at the beginning of the thirteenth century, proclaimed that man, by the use of nature, could do all things. Cusanus, with his wider knowledge, two hundred years later, restated the same thought and, in order to prove his assertion, became one of the first scientific experimentalists.

He was born in the little village of Cues on the Moselle, half way between Trier and Coblenz, in the year 1401. The family name was Krebs or Khrypffs (Cryftz) and his father, Johann Krebs, is described as a sailor or fisherman, perhaps of some means. He died in 1450, just after his famous son had become a cardinal. The boy's mother, Catharina Römers, died in 1427. Little is known of the family. The original meaning of the name is, of course, a crab, and may have been derived from the family occupation, as fishermen. Krebs is still a common name in the Moselle district. The house of Nicholas' birth is standing today in a state of excellent preservation. Over the door has been erected a tablet containing the brief

\* Read at a meeting of the Boston Medical History Club, October, 20, 1921.

facts in regard to his life, and a reproduction of the seal of the Cardinal showing a crab in the center. During the post-armistice period American troops occupied this house, Cues being within the area of the American Army of Occupation.

Nothing is known of the early childhood of Cusanus, except that there has grown up a story of very doubtful authenticity about his having fled from his father, because of ill treatment, to Count Ulrich of Mander-scheid, in the neighbouring village. We know definitely, however, that the boy was sent at an early age, by Count Ulrich, to the famous school at Deventer, Holland. Deventer is about a hundred and fifty miles north of Cues, a long journey for those times, partly down the Rhine from Coblenz, past well-known religious centers such as Cologne and Düsseldorf, and then on foot or mule over the Holland hills to the great school of the Brothers of Common Life. The good Count must have seen great possibilities in this lad in his teens to send him on such a long and arduous journey five hundred years ago. Little did the youthful Nicholas Krebs realize, as he traversed this wonderful country for the first time, that he, thirty-five years later, would be a great Cardinal and papal legate over all the land as far as his eye could reach. We must think of this lad of the fifteenth century, however, as clear-eyed and thoughtful, observing nature at every hand, much as did John Hunter, the great experimentalist of the eighteenth century, in his boyhood days.

On reaching Deventer, Cusanus found a school well established and filled with ardent students. It was founded by Gerhard Groot, "Magnus," a striking personality of the late fourteenth century, and a papal legate to Holland. Born in 1340, he took his M. A. degree at the University of Paris in 1358. He then became a teacher of theology and philosophy at Cologne; later was canon of Utrecht and Aix-la-Chapelle. This remarkable man traveled throughout Holland, wearing old clothes, preaching penance and

reform to thousands, with stupendous results. Many disciples gathered around him. He refused every dignity offered him by the state and church. His disciples are well remembered as copiers of manuscripts before the days of printing, many of which he distributed during his travels. By such means, knowledge was passed on from hand to hand. Groot founded the famous Brothers of Common Life, an order unique in that the members of it took no vows and worked for their bread between the times of their ministrations and teachings at the school at Deventer. Both of these principles were unheard of before Groot's time.

Another School at Zwolle near Deventer was founded by Zele, one of the pupils of Groot. Both of these schools were very important religious, educational influences in the fifteenth century, and boys streamed to them from all countries to receive their first teachings. It is not unusual, therefore, that Count Ulrich sent this young fisherman's son from Cues to Deventer. Cusanus received here his first inspirations of a moral and intellectual nature, but we know nothing definite of his studies except as they influenced, in a general way, his later life. He must have been profoundly impressed by his contact with the ardent, simple disciples of Groot, who was such an outstanding figure in history. In his will, as a tribute to this school, he left money enough to build a residence at Deventer for "twenty poor clerical students." This legacy was maintained for some years as the *Bursa Cusana* at the school. Ever humble, even in the greatness of his mature life, Cusanus was a firm believer in the principle of democracy of opportunity for rich and poor alike. He had been a "poor clerical student" and knew something of their struggles.

Except for the above facts, nothing more is known of Nicholas' early life or early education. We know, however, that in 1416 he went to the University of Heidelberg. He matriculated under the following signature, *Nicolaus Cancer de Coesze, clericus Trever(ensis) dioc(exis)*.

The journey north to Deventer was the first important event in his life; the second came when he was seventeen years of age, and turned in a southerly direction to an even more famous school, this time, the University of Padua, nearly five hundred miles from his home. Count Ulrich must have had great faith in his youthful protégé! Padua, in 1417, already ancient and famed as a university, was beginning to emerge from its medievalism to take its part later in the growing Renaissance, under the influence of Montanus, Benedictus, Vesalius, Fallopius, Casserius and many others. Cusanus remained in Padua six years, until 1423, when he was graduated as a Doctor in Canon Law (*decretorum doctor*). He studied Latin, Greek, Hebrew, and later, Arabic. We know that one of his teachers was Guiliano Cesarini, later president of the Council of Basle. Here in the University, Krebs formed a friendship that lasted to the end of his days. This young man, three years his senior, was Paolo dal Pozzo Toscanelli, taking courses in mathematics, philosophy and medicine while Nicholas Krebs took law and mathematics. Toscanelli was graduated as a physician in 1424, a profession that his father had followed in Florence before him. So ardent a student of medicine was he that his friends called him *Paolo Fisico*. After graduating he went at once to Florence where he lived for the rest of his life. We know little of him as a practitioner, except that he was called to the deathbed of his lifelong friend, Cusanus, in 1464, but his fame was world-wide at the time as a learned man, and his judgment was sought on all abstruse questions of theoretical mathematics by both Regiomontanus and Cusanus. One of the works of Cusanus, "*De transmutationibus geometricis*," is dedicated to him, *ad Paulum magistri dominici Physicum Florentinum*. He was a careful astronomer, an observer of orbits and comets, especially Halley's comet in 1456. His work in cosmography is, of course, well-known to you. It is very probable that Columbus consulted with him about the

passage to India and perhaps carried his maps on the famous voyage to America.

For the next two years we lose sight of Nicholas except for one reference not very clearly made in the literature. It is said that he practiced law after receiving his degree and lost a law suit at Mainz; as the result of this he decided to enter the church. This story, it has been pointed out, is rather unlikely in view of what we know later of Nicholas' life. At all events, he entered the church and, therefore, in 1425 went to the University of Cologne to study divinity. He was there fostered by the Archbishop of Trier, his native town of Cues being part of the archbishopric of Trier. It is said that the next year Nicholas became secretary to Cardinal Orsini, the papal legate for Germany, but the reference is doubtful. By 1428, he had finished his education at Cologne and had become a curate at Coblenz and other German cities and lastly in Belgium at Liège. This was probably a period of training in minor church matters, but he must have advanced rapidly, for three years later, in 1431, he began his public career at the Council of Basle.

To understand his work at the Council it will be necessary to review briefly the history of the papacy during the preceding years. Some fifty years before 1430 there had been a schism in the Catholic Church. At the Conclave after the death of Gregory XI, Urban VI, a Neapolitan, was elected (1378), but there was a distinct protest from the populace because a Roman had not received the nomination. Order was finally restored but the disturbed French cardinals succeeded in splitting the conference and retired for the second time, to Avignon in France with Clement VII as their pope. Therefore there were two popes for a time. This unfortunate situation continued for some years until 1409, when the Council of Pisa gathered without special authority. This body renounced both of these ruling popes and elected a third pope, Alexander V. The situation, therefore, left a three-headed papacy, and a schism within a schism.

This continued until 1414, when another Council was called by Sigismund, King of the Romans and later Emperor of Germany, which met at Constance. At this famous gathering the reformer Huss appeared, the doctrines of Wyclif were denounced, the books of Huss were burned and he with them. The Council did not succeed in disentangling the situation in regard to the popes but did elect Martin v in 1417, in place of the former pope elected at Pisa. Soon after this meeting at Constance, the news of the death of Huss penetrated into his native city, Prague, and a riot ensued by the Hussites. Two schools were formed, the Hussite opposing the Catholic. The storm soon abated, but by 1419 Protestantism was strongly in vogue. Thus, at this period in the church history, there were two great movements afoot, the beginning of Protestantism and the organization within the church, typified by the Councils of Pisa and Constance. In Germany, both Church and State were in an extremely bad condition; the bishops and abbots had begun to take an active part in the government and had become rulers and lords rather than shepherds. One son of each family usually sought the Church because of the easy life and the many benefices obtained. The number of monasteries controlled was enormous, thus increasing greatly the persons dependent, in large part, for support upon the working classes.

Into this complex situation came Dr. Nicholas Krebs, a man in his early thirties, unknown except to a few, such as Count Ulrich of Manderschied, and his old professor at Padua, Cesarini, now president of the Council. The Council met first at Basle from 1431 to 1437, and later at Ferrara. The object was to settle many matters and was definitely hostile to the existing state of the papacy. Many members wanted a complete overthrow of all existing institutions, but some of the more thoughtful delegates were more conservative. Krebs was thoroughly imbued with the necessity for reform but did not wish to become so

radical as to overthrow all existing institutions. At this time he wrote his famous treatise "On Catholic Unity," *De Concordantia Catholica*, in which he placed the authority of councils, such as the Council of Basle, above that of the pope. After the council had met, however, for some years, he saw that all councils were fallible and later acknowledged his error in judgment. He then took the stand that the pope should be supreme and for this decision was honored by the then existing Pope, Eugenius iv. Other matters taken up at this famous Council of Basle interested Nicholas. He defended the cause of his old friend, Count Ulrich, in a minor matter, but the cause was lost. He suggested, perhaps the most important point at the Council, the reform of the Julian calendar. In his "Reparatio Calendarii," (1436) he outlined a method, leading up directly to the work of Lilius and the Gregorian calendar of 1582. Cusanus and a French Cardinal who preceded him, Pierre D'Ailly (1350-1420) are important figures in the founding of the modern calendar.

As a result of the definite statement of allegiance to the Pope, made by Cusanus, he was sent to Constantinople by Eugenius iv, in 1437, where he remained two months. He gained, in this short time, many friends for the Pope. He also was interested in discovering Greek manuscripts and returned from the East with a number of them, chiefly mathematical, the translation of which into Latin he supervised.

Greek manuscripts were of great interest at the time. They had appeared in Europe after the great Crusades of the eleventh century when a few were brought back and deposited in the monasteries when monasticism ruled supreme over Europe and all monasteries had libraries. The monks were the great hoarders of learning, many of them "bookish men." Their time was partly spent in copying manuscripts and the arts of calligraphy, illumination and binding. In England it will be remembered that many of these manuscripts were destroyed by Henry viii. The largest

collections of manuscripts in Europe were in the monasteries in Switzerland, at St. Gall, at the southern end of Lake Constance, and on the island of Reichenau. In France perhaps the most famous collection was at Cluny, and in Bavaria, at the Abbey of Tegernsee. By 1447 the schism of the Church had disappeared and Nicholas v was the pope at Rome. He was essentially a student and books were his great passion. It will be remembered that a few years before that time, about 1439, Gutenberg was building his presses at Mainz.

The real revival of the Greek letters is due in part to Petrarch, 1304-1374. He was born at Avignon and lived there just before the time of the residence of the popes. He did not begin the study of Greek until he was forty years old, but from then on spent most of his time studying the language and stimulating search for manuscripts. His great friend and fellow-student was Boccaccio, 1313-1375, who was also interested in classical studies. Petrarch formed one of the first modern scholars' libraries. Under his direction scholars traveled all over Italy and into Germany and Spain, collecting manuscripts from the monasteries, many of which are now deposited in the Bibliothèque Nationale in Paris. He inspired many to master the Greek language and to search for manuscripts throughout Europe. It is not surprising then, that nearly one

hundred years later when Nicholas, keenly alive to all movements of his period, went to Constantinople, he was on the lookout for Greek manuscripts.

Other libraries of importance were begun at or about this time. The Vatican Library was founded by Pope Nicholas v in 1453. Cosimo de' Medici had begun the Medicean Collection a little earlier, to be followed by Poggio Bracciolini, who escaped from Constantinople with his precious freight in the first years of the fifteenth century. Not the least of these is the library of Cusanus himself, founded in the hospital built by him in his native village of Cues about 1450.

On his return, Cusanus reported to the Pope in 1438 at Ferrara and he was created a papal legate to various cities in Germany. During the next nine years he spent his time traveling throughout Germany and France. We hear of him at Mainz, Frankfort, Nuremberg and at the court of Charles VII of France. He rallied the various organizations of the Church to the support of Eugenius IV with such success that he was called "the Hercules of the Eugenians." As a result of this effort he was offered the red hat of a cardinal by Eugenius IV but refused at that time to take it. This was largely because the reign of Eugenius as a pope was nearly over, and the next year, 1447, Nicholas V was elected pope. Two years later, in 1449, Krebs was made



NICOLAUS CUSANUS  
(1401-1464)

Cardinal-priest of S. Petri ad Vincula. He was appointed to the diocese of Brixen in 1450. His appointment, however, was opposed by Sigismund, Duke of Austria and Count of the Tyrol. The opposition was so strong that Nicholas could not take the appointment until 1452. In the meantime, he again went to Germany as a papal legate and also to the Netherlands. For two years he traveled throughout the country visiting many places and all the important monasteries and hospitals. He reformed and corrected many parishes. It is said of him that he rode a mule from place to place. A story is told of his reaching Halle on the 6th of June, 1451, where he was met by a multitude of the cheering populace. A large company had filled the streets before the Rathaus to do him honor, but with characteristic modesty and humility, he escaped the crowd and withdrew to an embrasure of a window where he had a long talk with Busch, a reformer of the time. He later made Busch his assistant in Germany in visiting the monasteries. His trip ended at Cologne in 1452. It was said that everywhere he went he was considered "an angel of light and peace."

For the next eight years he remained at his post at Brixen where he had great difficulty with Sigismund. At the end of this period the trouble had not been settled and Nicholas was imprisoned by Sigismund who extorted from him a treaty unfavorable to the bishopric. He then escaped and went back to Rome where he laid the case before the then ruling Pope, Pius II. Little protection, however, was offered Nicholas by this weak ruler. It was not until 1464, the year of the death of Cusanus, that the Emperor of Germany, Frederick III, finally forced Sigismund to submit to the Church. Cusanus never recovered from the ill treatment received at the hands of Sigismund. He was sent on another mission by the Pope but died on the way, at Todì, in Italy, on August 11, 1464, in the presence of his old schoolmate of Padua, Toscanelli, by this time a renowned physician, and another

friend of his school days, Bishop Johannes Andreae. His body was buried at the church of S. Petri ad Vincula at Rome but the heart was removed and taken to his hospital at Cues.

Such is a brief description of the life of Nicholas Krebs, known in history as Nicolaus Cusanus. It was a life full of travel, adventure and reforming activities. In his fifty years of active life, he must have had few moments of relaxation and quiet. We constantly hear of him going or coming, reforming both the Church and the State. He seems to have been almost indefatigable, for he traveled year in and year out, much of the time on a donkey, from one end of Germany to the other, everywhere restoring order, improving the intellectual outlook of the clergy and providing instruction for the people. He thoroughly appreciated the value of pictures for teaching purposes and he had illustrations made of the Ten Commandments, the Apostles' Creed and the Lord's Prayer, with text appended for use in the village churches.

It is said of him that he "ever remained simple in speech, manner and dress, was mindful of his humble origin and loved humanity." He distinguished himself while a student at Padua and later in almost every branch of science, but "he had no other ambition than to be the lowliest instrument in building up the House of the Lord." He was a believer in no half measures and early in his career he said, "a mortal sickness has afflicted the whole realm and death will inevitably follow if a stringent remedy be not applied." Cusanus carefully and conscientiously practiced all that he preached and lived a blameless life. He was always a student in spite of his almost superhuman activities, a man of faith and charity, possessing a mind capable of grasping all the then known human sciences, yet despising no detail as too elementary or trilling to occupy him.

Some time before his death Cusanus founded a hospital or almshouse in his native village of Cues, for thirty-three poor



persons, the number being that of the years of the earthly life of Christ. To this institution he left his valuable library, his scientific instruments and most of his worldly possessions. In addition to the founding of the hospital at Cues and the *Bursa Cusana* at Deventer, he left two hundred and sixty ducats for the infirmary, S. Maria dell' Anima, at Rome. His will is in the library of this hospital. The building was begun about 1450 and since that date few changes have been made in its structure. It stands close to the river with the village grouped around it, a fine example of early Renaissance architecture. During the War, the thirty-three poor men retired to the village and the building was used as a German hospital until after the Armistice when American troops occupied the area and used it as a Field Hospital.

By the will of Cusanus the hospital is really a poorhouse, the stipulations for entrance being that only men can enter; they must be good, poor, over fifty years of age and not sick. The men are chosen from the district by the Burgomaster of Cues and his assistants. Each man has a good room and is comfortably housed. Arrangements are made for his family to be looked out for outside the hospital. Only within the last nine years have women been allowed in the building. Now (1919) there are six sisters and six domestics; the sisters belong to the Order of the Poor Handmaidens of Jesus Christ. The Rector of the Hospital is curator of the Library and Museum.

The library is an integral part of the hospital, occupying a small room on the second floor. The approach is through dark corridors of stone and up a winding pair of stairs, dark, forbidding and steep, a true medieval passage to a monastic-like treasure room. The opening of a heavy door, unlocked with difficulty, discloses a neat room lined with bookshelves and dimly lighted with leaded windows. Ancient tomes and many bound manuscripts fill the shelves with some of the finest of them in a glass

cabinet along one wall. All are well marked and catalogued, thanks to the untiring efforts of Professor Marx of Trier, who spent many hours going over each item, carefully describing the binding, paper, illuminations, notes, etc. All his results are now published in a splendid catalogue *raisonné*.



LIBRARY IN THE HOSPITAL AT CUES

Great treasures are at hand in fifteenth century manuscripts besides many of the originals of the works of Cusanus, filled with superb astronomical drawings and beautiful illuminations. In the few minutes given to me, I could only turn some of the pages with admiration for the founder of such a wonderful collection of books, many of them so beautifully preserved for over four hundred years. Such a library is a fitting monument to a great figure in history.

The Library contains over three hundred manuscripts, about eighty-five incunabula and some fifty books published between 1500 and 1550. The subjects are mainly theological, although medicine and astronomy are well represented. Many of the manu-

scripts are beautifully bound in vellum or written on parchment heavily embellished with illuminated letters. Scattered throughout are notes in the Cardinal's hand, especially in the books on astronomy, and many of them contain numerous illustrations and diagrams dealing with astronomical and mathematical problems.

All of the works of Cusanus are found in the Library, most of them in manuscript form, although printed editions have been added later. One volume, in the hand of Rector Ercelentz (about 1488) is a complete copy of many of the manuscripts, and was probably used as the basis of the first printed edition. This was printed in Strasburg by Martin Flach in 1488-90. Seven copies of this edition are now in American libraries and another, now in the library of the late Sir William Osler, will soon be added to them. A second edition, which I have not seen, said to be almost identical with the first, was published in 1502. Another edition was printed in 1514 in Paris; still another, by Henri Petri at Basle, 1565.

The writings of Cusanus have been conveniently divided under four general headings: juridical, philosophical, theological and scientific. In the first group, juridical, are found "De Concordantia Catholica" and other papers written for the Council of Basle (1432-35). His philosophical works were mostly written after he was forty. "De Docta Ignorantia" (1439-40) is the best known. It centers on a definition of finite and infinite, and demands a system of philosophy tending to unify all experiences, but more especially religious experiences. His main theme is that "all human knowledge is mere conjecture and that man's wisdom is to recognize his ignorance." Other philosophical works along similar lines are "De Conjecturis" and "Compendium," the latter, more especially, attacking the methods of Aristotle.

The theological papers are many, and can only be alluded to here. They are said to be dogmatic and mystic. The scientific

papers interest us more. There are about twelve of them, all short. The "Reparatio Calendarii" (1436), written for the Council of Basle, has been mentioned. Other papers deal with astronomy, partly the result of careful observations with a few instruments, and partly speculation. Another paper, "Quadratura Circuli" deals with the old problem of squaring the circle, the attempted solution of which by Cusanus was opposed by Regiomontanus and criticized by Toscanelli.

In other works, partly scientific, one finds many suggestions, especially on astronomy, antedating the works of Copernicus (1473-1543). Cusanus states, in "De Docta Ignorantia," that the earth is not the center of the universe and that it is not devoid of motion. He even goes so far as to note that the earth moves not only on its axis, but as the stars in the heavens. "I have long considered that this earth cannot be fixed, but moves as do the other stars," and again, "to my mind the earth revolves upon its axis once in a day and night." The full development of the heliocentric theory came nearly a century later when Copernicus completed his "De Orbium Coelestium Revolutionibus" in 1530, not daring to publish it, however, until 1543 because of its revolutionary character, or perhaps more truthfully, as Walsh remarks, "because his astronomical opinions were constantly progressing; and with the patience of true genius, he was not satisfied with anything less than the perfect expression of truth as he saw it." The notes of Cusanus passed unnoticed in 1450 and those of Copernicus were not accepted in 1545. Even as late as 1600, Giordano Bruno, an exponent of the views of Copernicus, died a martyr at the stake in Rome in defence of the Copernican theory. Copernicus, like Cusanus, was a product of the school of medicine at Padua. He practiced medicine throughout his life with skill.

In mathematics and physics Cusanus was much in advance of his age. He wrote extensively on geometry and arithmetic,

partly in a philosophical vein. Cantor, in his "History of Mathematics," gives some twenty pages to him. Cusanus preceded Regiomontanus (1436-76), sometimes known as Johann Müller, who wrote the first book on trigonometry ("De Triangulis, Nuremberg, 1533) and completed Purbach's great work on the astronomy of Ptolemy. Regiomontanus was the outstanding figure of his time. He equipped the first European observatory, making the instruments him-

ses his fundamental ideas on the use of the balance in medicine and science.

Mitchell says, in his delightful essay on the "Early History of Instrumental Precision in Medicine," "the history of the balance in medicine is yet to be told." Cusanus' use of it forms an important chapter in its history. His work leads directly to Sanctorius and his metabolic studies with the steelyard chair and to Van Helmont's gravimetric analysis of urine.



THE HOUSE IN CUES, GERMANY, IN WHICH NICOLAUS CUSANUS WAS BORN

self, and had a printing press as early as 1474. It is said that he was greatly influenced by the work of Cusanus. He died at the early age of forty, twelve years after Cusanus.

In one short paper by Cusanus, "De Staticis Experimentis," are found many of his interesting contributions to science. It was written and published as the fourth part of a series of papers called "Idiotae libri quatuor," in the form of a dialogue between *Idiota*, or an ignorant man, and *Orator*. These four papers were published separately as "Idiota" (1476).<sup>1</sup> In "The Experiments on Statics," Cusanus expres-

Cusanus first suggests that the balance might be used to establish more accurate judgments in regard to the qualities of water, blood, urine, herbs, etc., although he wisely remarks that "nothing in this world can reach absolute precision." Many mysteries, he says, can be truly solved by the differences of their weight. For instance, the weight of equal amounts of water from springs might be compared, and he quotes Vitruvius, the famous Roman architect and engineer, on the value of choosing the site for a house near lighter and sharper water rather than one located near heavy and earthy water, probably referring to the bad

<sup>1</sup>An English edition has been called to my attention by Dr. E. C. Streeter: "The Idiot in Four Books. The first and second of Wisdom. The third of the Munde. The fourth of stick Experiments, or experi-

ments of the Ballance. By the famous and learned C. Cusanus, London, printed for William Leak, 1650." A copy is in the library of the University of Pennsylvania, Philadelphia.

effects of living near stagnant waters and perhaps suggesting the effects of malaria. The disease was common in Rome and the drainage of a swamp land was a plan of recognized value. A single manuscript of Vitruvius was found by Poggio Bracciolini while attending the council of Constance, at the monastery of St. Gall during the early life of Cusanus and it is not unlikely that he knew of it and perceived its value. We know that later in the Renaissance after the death of Cusanus the work of Vitruvius, "De Architectura," was the chief authority on the subject.

Perhaps more important than the weighing of water from different springs is the suggestion to weigh water from the same spring at intervals of time and thus note changes in its quality. It requires only a slight change of method to compare the weights of the sediments, a procedure now in vogue.

Cusanus also speculates, on less firm ground, in regard to the value of comparing the weights of equal volumes of the blood or urine of "a healthy man and of a weak one, of a young man and of an old, of a German and an African," thoughts which in part now find their place in the problems of modern blood chemistry. He also suggests that the difference noted in the blood and urine above would be an indication for the amount of treatment (herbs) to be given. Only very recently has the amount of blood sugar or the amount of protein in the cerebrospinal fluid been used as indicative of the amount and character of diet to be given in diabetes, or the grams of arsenic to be administered in neuro-syphilis.

In suggesting the balance as a quantitative measure for metals, he first noted the difference between a weight in air and in water, i.e., the specific gravity. He would use this to determine quality of metals much as we use it today, but he slyly remarks that such a method "would be of very great value in ascertaining how far the works of sophistical chemistry fall short of reality." A practical mind groping in the darkness of alchemy!

Among other points, Cusanus calls attention to the property of quicksilver clinging to other metals, the basis of making of mirrors, although today, of course, the silver is deposited by an electrical method. Also, he would measure the "pull" of a magnet by the use of the balance and, perhaps more important, he would compare the weight of an object with the weight of its ashes, thus estimating the loss of weight due to combustion. The absorption of water by seeds and the conversion of snow into water by heat are noted. In fact, so many points are brought out that he questions the possibility of recording all the facts even in a very large book. He remarks that "experimental science demands extensive treatises, for in proportion as they have been more numerous so much the more infallibly can the knowledge concerning experiments, which they bring to notice, be arrived at."

Another experiment is suggested, to record the humidity of the air by weighing an absorbable substance such as wool in dry air and moist air, and also, conversely, to test the drying power of the sun, both experiments being of great practical value to the agriculturist. Still other experiments test the speed of ships, and indicate his knowledge of both relative and absolute motion. The experiments relative to astronomy are fundamental but cannot be given here. Many of them are based on time as measured by the water clock, or clepsydra, which measured the time intervals by the flow of a definite amount of water. The Nuremberg eggs, the first watches, the invention of Peter Henlein, did not appear until the middle of the sixteenth century. Clocks only existed in the towers of cathedrals and public buildings; the water clock, in the time of Cusanus, was the only time measurer in the home.

Cusanus also suggested the use of the water clock to take the pulse, or rather, to weigh the water fallen from the clock during the time of one hundred pulse beats of a healthy man and during the time of an

equal number of pulsations in a weak man. This method he would apply to men of various ages and with different diseases. The same method was used in relation to respiration, especially in fevers.

"The Experiments on Statics," therefore, is full of suggestions far in advance of its time. Some are, of course, only restatements of ideas expressed by others before the Middle Ages. Much of his work fell on deaf ears. Many years were to pass, even cen-

William Osler, who had the translation made for me in London from his own first edition of the works of Cusanus.

Let me conclude this brief and very incomplete paper by a summary note on the position Cusanus holds in history. He was not a "great" figure, when comparison is made with the stellar lights of the Renaissance who came after him, but even his relative importance has not been sufficiently emphasized. Burdened as he was by



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turies, before the worth of these suggestions was tested or proved. We have no knowledge that Cusanus actually tested many of his theories himself. The work is certainly partly speculative; Cusanus' active mind formulated the problems and suggested proof of them by laboratory methods. A few of the geometrical and astronomical problems gave him much thought and he even solved correctly some of the mathematical ones. Undoubtedly, he pondered over them while traveling on his donkey throughout Europe. Once, when riding in a carriage, he noticed the track of a fly thrown off from the rim of a wheel, and from this observation he solved a mathematical curve.

"De Staticis Experimentis" contains so much of importance that one feels justified in producing a complete English translation of it. For this, I am indebted to the late Sir

medieval theology, nevertheless, he saw and stated clearly certain principles of science and medicine that were either new or had been dormant in men's minds for centuries. His work in mathematical physics and on measurement and specific gravity once again called the attention of the world to the importance of science. In spite of his ecclesiastical standing, he was able to make, and had the courage to announce, his revolutionary theories of astronomy. To say that the earth was not the center of the universe when no one considered it otherwise, was an important and courageous stand to take. It was not, however, the first observation of this kind, but it was a restatement of the fact at an important and critical time in the history of world thought. Most thinkers of his time, entrusted by the popes as he was, were absolutely submissive to the will of the Church, and accepted

without question all of the medieval canons upon which the Church stood.

In relation to medicine, his observations in "The Experiments on Statics" are fundamental. His great achievement was the counting of the pulse, which, as Norman Moore says, "had been felt and discussed in many ways, but never counted. The first method of a new invention is often unnecessarily cumbrous, but this does not detract from the merit of the man who first discerns its principle."<sup>2</sup>

In addition to his scientific achievements, we ought to remember Cusanus as an author and philosopher of rare ability. His philosophy is perhaps best expressed in the following quotation:

To know, to meditate, to see the truth is a perpetual joy, and the older one grows the greater is the delight which it affords, and the more one gives one's self up to it the greater is one's longing for the possession of all truth. As love is the life of the heart, so is the endeavor after knowledge and truth the life of the mind. In the midst of the movements of time, of the daily work of life, of its perplexities and contradictions, we should lift our gaze fearlessly to the clear vault of heaven and seek ever to obtain a firmer grasp of, and keener insight into, the origin of all goodness and duty, the capacities of our own hearts and minds, the intellectual fruits of mankind throughout the centuries, and the wondrous works of nature around us; but ever remembering that in humility alone lies true greatness, and that knowledge and wisdom are alone profitable in so far as our lives are governed by them.

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<sup>2</sup> According to Allbutt, Herophilus was the first to count the pulse, using a pocket water-clock made in Alexandria. (Allbutt, "Greek Medicine in Rome," London, 1921, pp. 139, 163, 301.)

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### DE STATICIS EXPERIMENTIS<sup>3</sup>

By

NICOLAUS CUSANUS

The layman's treatise concerning static experiments begins pleasantly.

The well-known Roman orator used to keep company with the idiot so that he might now and then hear his ideas, which pleased him.

When the orator praised a balance as being the scales of justice and an instrument of necessity to the state, the idiot replied:

IDIOT. Although nothing in this world can reach absolute precision yet we endeavor to establish more accurate judgment and so it is accepted on all sides. But tell me, pray, since it is not possible for a weight to be of the same size in circumstances of diverse origin, should not each weight be tested by different experiments?

ORATOR. I have neither read nor heard so.

IDIOT. I wish some one would furnish such a verification. Even were it spread over many volumes, I would gladly give attention to it.

<sup>3</sup> Translated from the Flach, Strasburg Edition, 1488-90. (Hain 5803<sup>1</sup>) in the library of the late Sir William Osler.

ORATOR. If you felt inclined to do it, I do not think anyone would do it better.

IDIOT. Anyone who wished could do it, for it is quite easy, but I lack the time.

ORATOR. Just speak of its usefulness and system. I will see if I, or someone else can finish it.

IDIOT. I think the mysteries of things are more truly solved by the differences of their weights, and that a great deal might be ascertained by a more accurate interpretation.

ORATOR. What you say is really excellent. For this the prophet tells what is the weight and balance, while the decision is His, who has created all things in number, weight and measure, and has launched springs of water and weighed out the mass of the earth, as the wise man writes.

IDIOT. If therefore a measure of the water of one spring is not of the same weight as an equal measure of another, the decision, as to the different nature of the one and the other, is better attained by a scale than by any other instrument.

ORATOR. You say well. Vitruvius writing on architecture advises that a site for a house should be chosen, which has lighter and sharper waters, while one which has heavy and earthy waters should be shunned.

IDIOT. Thus the waters of the same spring seem to be of the same weight and nature, whilst those of different springs are of different weight.

ORATOR. You say they seem, as though they were really something else.

IDIOT. I admit that weight varies with time—perhaps sometimes imperceptibly, for undoubtedly the weight of water is at one time this and at another time that. So too there is one weight of water round about a spring, another at a distance from the spring, but the differences being scarcely perceptible are considered of no consequence.

ORATOR. You think then that in everything it is just as you have said in respect of water.

IDIOT. Certainly I think so. For by no means have things similar in size, yet different in quality, the same weight. Hence since there is difference in the weight of the blood and urine of a healthy man and of a weak one, of a young man and of an old, of a German and an African, would not a physician hold it of the greatest value to have all these differences registered?

ORATOR. Most certainly. Indeed through

having the weights authenticated he would think himself in an admirable position.

IDIOT. Now I think a physician would be able to come to a truer decision from the weight of urine and from its color at the same time, than from a deceptive color.

ORATOR. Most certainly.

IDIOT. So also, as the roots, stems, leaves, fruits, seeds and sap of herbs have their own weight, if the weights of all herbs were registered with their various situations, a physician could better arrive at the nature of them all from their weight and odor, than from a deceptive taste.

ORATOR. You speak excellently.

IDIOT. He might then learn from comparing the weights of herbs with the weight of blood, or urine, to arrive at the amount to be applied from the similarity and difference of the drug, and to make wonderful prognoses, and so from experiments by the scale everything knowable could be reached by a more accurate inference.

ORATOR. It is greatly to be wondered at that hitherto so many hard working researchers have been inactive in registering weights.

IDIOT. Do you not think that if you let water flow from the rigid opening of a water clock into a basin for so long as you could feel the pulse of a healthy youth beat a hundred times, and did similarly in the case of a weak lad, that differences of weight betwixt the waters would fall under your notice?

ORATOR. Who doubts it?

IDIOT. From the weight of waters therefore, the differences of the pulses would be arrived at, in the young, old, healthy, infirm, and so a truer knowledge of the disease; since there necessarily turns out to be one weight in one infirmity, another in another. Wherefore a more accurate judgment might be arrived at by such a difference resulting from an experiment of the pulses, and by the weight of the urine, than by the touching of a vein and the color of urine at the time.

ORATOR. You speak excellently.

IDIOT. If what has already been affirmed up to this point from the position of the weights of water affects spitting or breathing by inspiration and expiration, would it not still give a more accurate inference?

ORATOR. It would, certainly.

IDIOT. For if, while water flowed from a clock, 100 expirations were counted in a boy, and similarly in an aged man, it is not possible

that the waters should turn out to be of the same weight. So I say in respect of other diverse ages and constitutions. Then when a physician had definitely fixed the weight of the breath of a healthy boy or young man, and likewise of a man suffering from various weaknesses, undoubtedly by such an experiment he would arrive more surely at the knowledge of health and of a fall away from it, and at the quantity of the remedies.

ORATOR. Yes, even at inferences of their period.

IDIOT. You speak well. For if he were to discover in an uninjured youth the weight of an old and decrepit man, he would infer that he was surely about to die, and he would make wonderful inferences of this kind. If still in the case of fevers he could register by a similar method the conditions, hot and cold, by the differences of the weights of the water, would he not be able more truly to arrive at the effectiveness of the disease and the fitness of the remedy?

ORATOR. Undoubtedly he could, for he would test the ascendancy of one quality over another, of heat over cold, and conversely, and according to the condition he had found, he would apply certain measures.

IDIOT. Still I say in different nations, districts and types, these conditions change at the same period of age. Whence although difficult, it would be very useful to have them all registered according to their weights.

ORATOR. It is just as you say.

IDIOT. It seems, however, that the weight of each thing should be taken as the average of its weights, as they vary in different climates. As, for instance, if the weight of a man be considered in comparison with another animal; then the man should be considered, not as living in the North or South, where here or there he is beyond the average; but rather as living in an average climate.

ORATOR. You speak excellently. The ancients called that climate "Dyarodon" for it stretched from East to West through the island of Rhodes. But I should like to know how you would proceed, if you were seeking the weight of an entire man, in comparison with any other animal.

IDIOT. I should place the man on a scale and should hang a weight equal to him on another part of it; then I should put the man

into water, and again outside the water I should hang a weight, equal to him, from another part; and I should note the difference of the weights. Also I should do the same with the given animal, and I should note down what I had learned from the various differences of the weights. After this I should direct my attention to the difference of the weights of man and animal out of the water, and then adjust and write down what I had found.

ORATOR. I do not approve of this principle of adjusting.

IDIOT. I will show you.

*And having taken a light piece of wood, whose weight was as III, while that of water filling the same space was as V, he divided it into two unequal parts, one of which was double the size of the other. He put both in a tall cask and held them down with a stick, while he poured water over them, and when he withdrew the stick, the pieces of wood jumped to the surface of the water, and the larger piece quicker than the smaller.*

Look, you see the difference of motion in exact proportion with its cause, for in light pieces of wood, there is more lightness in the larger one.

ORATOR. I see and I am greatly pleased.

IDIOT. So I say adjustment ought to be made. For, if a man because of his greater size was heavier than an animal he would sink in water quicker than an animal of the same proportion. Wherefore then the adjustment of a difference that has been discovered ought to be made by proportionally diminishing its excess.

ORATOR. I understand now. But tell me how the water hinders the wood sinking.

IDIOT. Because the greater heaviness hinders the less. Wherefore if you have pressed a round piece of wood into wax and drawn it out, filling its place with water, and have noted the weight of this water and similarly of the wood, you will find that if the weight of the wood exceeds the weight of the water, the wood sinks; if not, it floats, and a part of the wood remains above the water in proportion to the excess of the weight of the water over the weight of the wood.

ORATOR. Why do you talk of round wood?

IDIOT. If it is of a broad shape, it will cover more of the water and will float higher. Hence ships in waters of little depth ought to be of a wider bottom.



ORATOR. Go on with what you have begun. Could the weight of animals be arrived at in any other way?

IDIOT. I think they could. For if you filled a balance with water up to the brim and put the same into another, then took the weight of a man outside the water, after this made him sink in the former scale and collected and weighed the water that flowed out, proceeding in like manner with another man, or animal, or any other thing, from the differences of the weights by an acute calculation you would arrive at what you sought.

ORATOR. Plainly I have often heard, that at times the difference of metals has been discovered by this system, and that some men have noted how much gold, silver, copper, and so of all metals, is collected by pouring out an ounce of wax.

IDIOT. He who observes the quantity during its pouring out deserves to be praised. For he sees that if gold occupied as much space as an ounce of wax, then its weight would be so much. Thus too of other metals. For it is very certain that gold has one weight, silver another and other metals in relation to their quantity. And the weight of anything you like is one thing in air, another in water, another in oil, or in other liquid. Then, if anyone had all these weights registered, he would know forthwith how much heavier one metal is than another in air, or how much in water. Hence whatever mass were given, through the difference of its weights in air and water, he could tell to what metal or to what mixture, the mass belonged, and as it has been settled regarding air and water, so also it could be settled concerning oil, or any other fluid, in which an experiment has been made.

ORATOR. So without pouring out the mass, or separating the metals, the mixture would be found out, and this system would be useful in mints to find out how much copper has been mixed with gold or silver.

IDIOT. You say well. Certainly it would be of very great value in ascertaining how far the works of sophistical chemistry fall short of reality.

ORATOR. If anyone therefore proposed to write a book on weights he ought even to register the difference of every metal, as it seems; for the gold of Hungary has one weight, the gold of Obren another. And so of each metal.

IDIOT. From the foregoing statements it is certain that as in springs, so also in mines difference of weight is found. Gold, however, wherever it is found, is always heavier than any other metal. So that golden glitter is found to vary in weight within a certain limit. And so of the rest.

ORATOR. From the position of the weights of metals, can the position of their masses be sought for.

IDIOT. Lead is much like gold in weight, but not at all as regards its perfection. So, I do not consider that attention should be given to one weight alone, but to each weight in turn. For if anyone gives attention to the molten fire both of gold and lead, he will find that lead approaches gold less than any other metal; and if anyone gives attention to the weight of the fire of melting iron, he will realize that iron approaches gold more nearly than does any other metal: question how far this is of less importance in comparison with gravity. Wherefore all sorts of weights ought to be given attention—not gravity only, and thus we find silver to be nearer to gold.

ORATOR. Vitruvius says concerning the weight of the substance of gold that it alone sinks in quicksilver, of however little heaviness it may be, whilst other metals float of however great mass they are.

IDIOT. Quicksilver can be compared with all metals on account of the property common to itself and them; but it clings more closely to gold, as the least perfect in its quality to the most perfect. Hence those who have leisure for experimenting in chemistry seek to overcome quicksilver by fire, when not only does it not vanish from the fire, but keeps all other metals, to which it is united, fixed with itself and not only this, but brings them to the weight of gold by its permanent nature of flowing and its malleable moisture, and tinges them with a fixed and permanent color.

ORATOR. Do you think then it is possible to accomplish what they propose?

IDIOT. Accuracy remains unattainable, but how far they have progressed the scale shews, without which they can accomplish nothing certain, for by this judgment of fire and scale, investigation of this subject can be made.

ORATOR. Can all precious stones be weighed in like manner?

IDIOT. There is no doubt that all can be

weighed by one system, for a diamond has one weight as compared with a piece of lead of equal size and a sapphire has another, likewise compared with a piece of lead of equal size and from their different sizes the relation of the leaden weights of each is known. And similarly concerning all stones, so that by that method of experiment with a scale, it would be very useful to have the weights registered with their different sources, so that if any falsities were made in beryl or colored crystal they could be detected.

ORATOR. As a stone has one weight in air, another in water and another in oil, it would be good to have their differences noted, so that without referring to lead or any other third matter, the differences of their weights might be known.

IDIOT. You speak excellently.

ORATOR. Tell me if it appears to you that the value of stones could be weighed by any other method.

IDIOT. I think that the value of a loadstone might be weighed, if iron having been placed on one side of a scale, and loadstone balancing it on the other side, then, the loadstone, weighing so much, having been taken away and another weight substituted for it, if the loadstone were held over the iron so that the iron fixed on the double sided balance were attracted upwards to the loadstone, by this movement out of level with the other side the weight would be made heavier until the iron was pulled back to the level while the loadstone remained unmoved. I think the value of the loadstone might be said to have been relatively weighed through this drawing back of the weight (to its former level position). Similarly also the value of a diamond might be arrived at from how far it is said to prevent a loadstone from attracting iron, and other values of other stones from their control and also from the difference of the size of their substance, since in a larger substance would be larger value.

ORATOR. Could not also a skilled man find out how much quicksilver and how much sulphur any metal, or stones contain?

IDIOT. He could certainly by the agreement and disagreement of weights closely search out all such questions, and likewise the elements of quicksilver from the difference of its weight in air, water, and oil, compared with water and oil and with the weight of ashes of the same size. So also of sulphur. Thus through this

method he could arrive by a more accurate inference at the elements of all metals and stones and at the weights of their elements.

ORATOR. These are admirable ideas. Could it not also be done in respect of herbs, woods, flesh, animals and fluids?

IDIOT. In respect of all, I think. For when wood has been weighed and after being burned its ashes weighed too, one learns how much water was in the wood, for only water and earth have a heavy weight. Likewise it is known from the difference of the weight of wood in air, water and oil, how much that water in wood is heavier or lighter than the pure water of a spring. So too, how much air (was in the wood) and from the difference of the weights of the ashes how much fire, and thus the elements are searched for by a more accurate inference; although absolute precision may be always unattainable. Also what has been said concerning wood may likewise be said of herbs, flesh and other things.

ORATOR. It is said that no simple element can be found in the way in which we have done this experiment by scale.

IDIOT. If anyone having put 100 lbs. of earth in a cask, afterwards packed up the 100 lbs. excluding herbs, or seeds, which had been thrown upon the earth, after first being weighed, and in a short time again weighed that earth, he would find it diminished in weight. From which he would gain an opinion that the herbs he had gathered had been made heavier by water. The waters therefore mingled with the earth have attracted these herbs, belonging to the earth. The actions of the sun too on herbs are congested. If these herbs were burned would you not infer through the differences of all the weights how much earth over 100 lbs. you had acquired? It is manifest also that the extra weight had been added by that water. Elements are partly converted into one another, as we find when glass is placed upon snow we discover that the air on the glass is condensed into water, like a fluid on the glass. So we find that certain water is turned into stones like water into ice, and there is a quality, for hardening and turning into stone, in certain springs, which turn things placed in them into stone. So it is said that Hungarian water is found, which, on account of vitriol in it, turns iron into copper. Indeed it is established by such capacities that waters are not simple elements

but are made up of elements and it would be most valuable to possess the weights of all these waters of various capacities, so that from the difference of their weight in air and oil, we might make a close inference of their capacities.

ORATOR. So also concerning earth.

IDIOT. Yes, also concerning earth; since one kind is fertile another sterile, and in one we find stones and minerals, which are not found in another. It would therefore be very useful to know the various weights of different earths in water, air and oil, for the purpose of enquiring into their separate natures—so also from the difference of the weights of urines, wax, oils gums, aluminum, squills, leeks and all such weights. I think that the capacities they possess in different forms could in some way be found out.

ORATOR. These things could scarcely be written in a very large book.

IDIOT. Experimental science demands extensive treatises, for in proportion as these have been more numerous so much the more infallibly can the knowledge concerning experiments, which they bring to notice, be arrived at.

ORATOR. Perchance even the weight of air can sometimes be arrived at by acute conjectures.

IDIOT. If anyone were to hang a quantity of wool, dry and scorched, on one side of a large scale, and on the other side stones up to the same level, in a district and atmosphere of mild temperature, he would find that the air became moist, the weight of the wool would increase and that as the air inclined to dryness it would shrink. So by means of such variation he weighs the air and might make similar inferences concerning the changes of seasons. So should anyone wish to find out the varying strength of the sun in different climates, if from the more fertile fields of one as of the other climate he weighed a thousand grains of wheat or barley, from the difference of their weights he would find the varying strength of the sun; for, with a definite quantity and a field of equal fertility in any place you like, there could be no difference, save by reason of the sun. Thus indeed from the difference he would be able to seek after the strength of the sun in a region of mountains and of valleys, on the same line, East and West.

ORATOR. If anyone let fall a stone from a high tower, while water was flowing from a rigid opening into a basin, meanwhile weighing this

water that flowed forth, and likewise did the same while a piece of wood of the same size was falling, could he not discover the weight of the air from the difference of the weights of the water relating to the wood and to the stone?

IDIOT. If anyone did this from different towers of equal height and at different times he might at length reach an inference. Still he would discover the weight of the air quicker through different forms of equal length. For instance, if I let fall a pound of lead in spherical form from a turret, and gathered up the water from the clock, and then let out a pound of similar lead of a broad shape, similarly gathering up the water, from the difference of the weights of the waters, the weight of the air would be found out. For we find that birds with wings spread out remain steadier, because they take up more air. So also in water a compact weight of spherical form sinks quicker than when extended into a square, and so by such a method the weight of air, and of water too, can be discovered, and conversely the different value of forms.

ORATOR. I have heard that the depth of the sea is sought by some such method.

IDIOT. It might be done with lead made into the image of an eight-day moon, with one horn heavier and the other lighter and upon the lighter should be hung a fruit or other light thing of similar nature, and after the lead had dragged the fruit to the bottom, first touching the earth with its heavier horn and then bending over, the fruit having been released from the horn would return to the surface. Knowledge would be obtained by using a similar lead and fruit in other water of known depth for from the different weights of water flowing out of a clock from the time the lead was cast forth to the return of the fruit (to the surface) in different waters the question is answered.

ORATOR. I believe that in such and other ways the depths of waters can be investigated. But tell me whether the speed of a ship's movement can thus be ascertained?

IDIOT. As how?

ORATOR. Why by throwing a fruit into the water from the bow, and letting water flow from a clock until the fruit has reached the stern, and then comparing the weights of the water at one and the other time.

IDIOT. Certainly by that or another method, as through the shooting forth and arrival of

the ship like an arrow quicker or slower as compared with the water from the clock.

ORATOR. The knowledge of the power of works and engines seems able to be investigated relatively, through the flow of water from a clock from the moment when an arrow is shot diametrically upwards till it returns to earth, so long as the different engines have arrows of the same size.

IDIOT. The power of bombarding engines certainly and of wind, so also of the rapid movements of men and animals and of their strength and anything similar that can be mentioned could be investigated by inference from experiments with scales and by the flow of water from a clock.

ORATOR. How can the power of a man be found out?

IDIOT. You will see what weight, placed on one pan, a man can raise to a level with the empty pan by dragging down the latter. Then subtract the weight of this man from the weight he had pulled up and what remains of the heaviness of that article is proportionate to the power of the man.

ORATOR. So also the breath of a man can be weighed.

IDIOT. There is one weight of a man drawing in and holding his breath and another of his breathing out, also one of a living man and another of a dead one; so also among all animals. Whence it is admirable to have registered these differences among diverse animals and diverse men and among men of diverse age, so that inference may be able to reach up to the weight of living breaths.

ORATOR. Cannot the heat and cold and drought and moisture of a season be sought by such a method?

IDIOT. Certainly it can. For if you have marked the weight of water in a cold season, before it has frozen and afterwards, you will find it different. For when you see ice on the top of the water you will notice that it is lighter than the water. So according to the intensity of the cold the variation of its weight increases. So also, if in a hot season you have exposed water to air, the weight will vary according to the season. Or again, if you have weighed green wood, after some time you will have found its weight altered, and will realize from this the excess of heat and cold, as also of dampness and drought.

ORATOR. Cannot also the time of day be thus weighed?

IDIOT. If you have taken the water flowing from a clock from sunrise to sunrise and have weighed it, and again have made it flow on another day from sunrise, by comparing this weight of the water which has flowed out, with the first weight, you will be able to learn the hour and time of day.

ORATOR. Perhaps also the time of year!

IDIOT. Yes, if throughout the year from sunrise to sunset by means of the clock you have noted all the days, you will always be able to arrive inferentially both at the day of the month and the hour of the day; although on those days which have little variation in their brevity you will do it less surely than at other times.

ORATOR. I perceive that by such a system the motion of celestial bodies can be arrived at, as Nemroth is said to have done and Hisparthus to have described.

IDIOT. You say right and it is granted that their work was done with assiduity and careful consideration. For if anyone, when he had noted a star set on the Meridian line, gathered the water flowing from a clock, until the star returned and did likewise in respect of the sun from sunrise to sunrise, he would discover the movement of the sun towards the East from the difference of the lesser weight of the water belonging to the movement of the star from the Meridian line till its return to the same, also the sun's movement from rise to rise. For in proportion as the movement were less, so would its weight compare with the weight of the entire circle.

The movement would be in connection with the equinoctial circle, not the zodiac, which is not marked over the poles of the earth, but its own. So if anyone wished to find out, by means of this same star, how far the sun had moved in 15 days, he could do it by this very method, from the varying distance of the sun's rise as compared with the situation of the star on the Meridian line.

For instance, if today the difference of the position of the star on the line from the rising of the sun was found by the clock to be in a certain proportion to the weight of the water of the entire revolution of the star, then in 15 days another proportion would be found, owing to the difference of the movement and always in connection with the Equinox.

ORATOR. Cannot motion in the Zodiac be found in this way?

IDIOT. It can certainly from the movement of the sun from midday to midday and from rise to rise and from rising to setting. For by these differences the declination of the Zodiac from the Equinoctial line can be traced.

ORATOR. What about the difference of motion which is said to take place from the Eccentric Circle?

IDIOT. This also will be found when during the year dissimilarity is found in the Zodiac on similar days. For the sun does not move from the Equinox in an equal number of days during the summer, it returns to the Equinox just as in winter, when it does so quicker for it will not be found to have traveled from the "Scales" to the "Ram" in just so many days as from the "Ram" to the "Scales." This difference would disclose the eccentric or small orbit of the different movement.

ORATOR. What about the size of the sun's body?

IDIOT. By the weight of the water that flows from a clock, from the beginning of the sun's rising on the Equinoctial line, till it is entirely over the horizon, as compared with the water of the star's revolution, the appearance of the size of the sun's mass is known in relation to its sphere. Nevertheless its size can be sought after by another method—namely solar eclipses.

ORATOR. How?

IDIOT. We find the moon's movement in the same way as the sun's. Then from its eclipse and movement through the shadow of the earth we seek the size of the moon, in line with the fickle shadow of the earth, and from these we infer its average proportion to be of a certain size in comparison with the earth. Then from the movement of the moon and the eclipse of the sun we seek the distance of the sun from the earth and its size by an acute calculation—though still by inference.

ORATOR. From these instances, which you have related, it seems that all differences of movements and eclipses of luminary bodies, indeed the advances, halts, retrogressions, movements in straight lines, movements away from the center, of all planets, can be arrived at from the same and unparalleled system of the scale and clock.

IDIOT. Yes indeed, you can, if you are sufficiently accurate in picking up the variations.

ORATOR. But what about the evidence of stars?

IDIOT. I think also that from the difference of the weights of water in one and another year, and by certain other differences of the weights of trees, herbs and grains of corn, coming fertility or decay can be more quickly inferred from past experiments than from the movements of stars. For if in March the weight of water, air and trees be found to be of a certain degree, fertility of the earth ensues; if otherwise barrenness or mean harvests. So also of wars, plague and all similar ordinary events. And this is the root of the matter when from these stars in succession we seek the evidence of stars, just as people seek the age of the moon from signs of the marrow in animals, fishes and crabs, from trees also and rushes, and its zone from the flow of the sea.

ORATOR. I have heard that from the flow and ebb of the Nile the Egyptians foresee what is going to happen during the year.

IDIOT. There is no country which if it directed attention to such investigations would not make discoveries, and in accordance with this system from the fatness of fishes and reptiles at the beginning of winter, we anticipate extreme and lengthy cold, against which keen-scented nature has made provision for the animals.

ORATOR. What of the questions asked by astrologers? Can a favorable reply be made to them all by your system?

IDIOT. Well, if not favorable, at all events some reply, I think, can be made. But by what method an inference can be drawn in respect to these questions, needs considerable investigation. Nor can the appropriate method be ascribed to scales, for he who is replying may perchance not be able to ascertain the weight of his reply, except from the weight of the question. And indeed the ardour for asking a question for the purpose of investigating some foresight of a future event seems to be misplaced. Possibly it does not appear whence the desire comes, just as if a man who feels something in his eye, which he does not see, looks for it from another point in order to see what is not there.

ORATOR. I think you indicate you would like replies to be sought for just as in the wheel of Pythagoras the method is handed down from the varying combination of the name of

the mother asking the hour of the day and the light of the moon, or that one should sum up his inference as seers do from oracular responses, or by chance readings of books of the Sibyls, or from a stringed instrument, or houses, or geometrical figures, or the twitterings of birds, or the twirling flame of fire, or from reference to a third person, or some other casual intervention.

IDIOT. There have been people who used indirectly to seek for an answer out of a conversation, which they were having with their questioner regarding new dispositions in the order of a country as though a sudden opinion would make itself known in lengthy discussions. For if their conversation inclined to sadness, so it was thought would be the issue of the matter; but if towards joy, joyful would be the result. But I, having regard to the face, beard, movement of the eyes, style of words and the prophecy of the weights of the subjects, which I make my questioner tell me in repeated forms, used to consider that by giving such attention opinions can be formed. Still they are worth more when they come from a man, who lights upon truth without previous consideration, in whom a certain foreseeing spirit seems to speak. Nevertheless I think it is not possible to make a trade of such a matter, nor can a man who has discernment communicate it, nor should a wise man have leisure for these things.

ORATOR. You speak excellently, for St. Augustine relates that there was a bibulous man in his time, to whom the thoughts of minds lay open and who used to detect thieves and brought other secrets to view, though strange to say he was most unstable and had very little sense.

IDIOT. I know I myself have often related many things as the spirit gave me utterance and was almost ignorant of their reason. At length it appeared to me that a serious man ought not to speak without cause and I became more silent.

ORATOR. Well, after that it seems sufficient has been said concerning the movements of stars; something must now be added about music.

IDIOT. Yes, in respect of music experiments by scale are most useful. For from the difference of the weights of two brass bells, sounding a tone together, it is known in what relation of harmony the tone consists. So also concerning the weight of shepherd's pipes, and the propor-

tion of the amounts of water fitting the pipes is known,—viz.: Octave 5 notes, 4 notes and of all harmonies that can be made at all. So also from the weight of hammers, whose fall upon the anvil causes harmony of some description, and of drops falling from a rock into a pool, making various notes, and of flutes, and of all musical instruments, a system of considerable value is obtained by the scale.

ORATOR. So too of voices and songs.

IDIOT. Yes, in general all concordant harmonies are traced out more accurately by weights. Indeed the weight of an instrument is peculiar to its harmony, a relation sprung from the varying combination of different things. Yes, friendships and enmities of animals and men of the same figure and manners and whatever of such a kind is weighed with regard to its concordant harmonies and contrary discords. So too the health of man is weighed as harmony, also his weakness, yea fickleness and seriousness, prudence and simplicity, and many such things, if attention is minutely directed towards them.

ORATOR. What do you think concerning geometry?

IDIOT. I think the close proportions of circles and squares, and all others which concern the different capacities of figures, can be tested more appropriately through weights than any other way. For supposing you have made a pillar-shaped vessel of known diameter and height together with another cubic one of the same diameter and height, and have filled each with water and weighed them, their proportion will be known to you from the difference of the weights of the square in comparison with the circle to which it is assigned, and by this means a near inference can be formed of the circle squared and whatever else concerning this matter that you desire to know. So, if you have taken two wholly equal plates and have bent one into a circle to make a columnar vessel, and the other into a square for setting up a cubic vessel, and have filled these vessels with water, you will learn from the difference of their weights, the difference of the capacity of a circle and of a square of the same periphery. Thus if you have a number of such plates you will be able to form them into a triangle, a pentagon, a hexagon, and so investigate successively their various capacities. In like manner by weight you will be able to arrive at the knowledge of the capacities

of vessels of any shape whatever, and how scales may be made as instruments for measuring and weighing, how one pound lifts up 1000 lbs. owing to its distance from the pivot and its varying way of descent, whether straighter or more curling, and how all the fine lines of ships and machines ought to be made. Whence I consider that this knowledge gained by experience of weights is most useful for all geometrical arts.

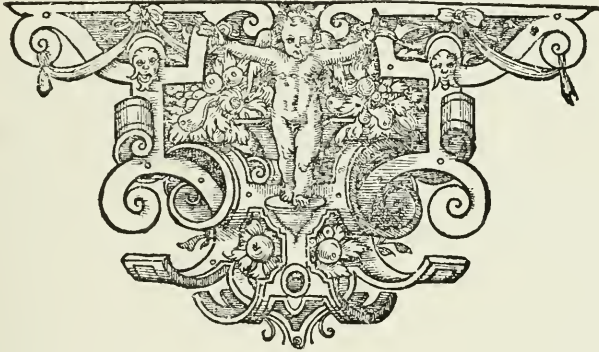
ORATOR. Now you have sufficiently explained the appropriate reasons for weights of things being taken on a balance, and registered one after another and over and over again.

For it seems a book like that would be most useful and sought after among distinguished men, so that in different regions its contents may be authenticated and unified, that we may be led more easily to the knowledge of many things hitherto concealed from us. I certainly will not delay from hastening it in every respect.

IDIOT. If you love me, be diligent—farewell—Thanks be to God.

The book of the layman concerning experiments with weights is finished, on the day of Fabian, 13th September.

Nicholas, Cardinal of St. Peter.



# GUY PATIN AND THE MEDICAL PROFESSION IN PARIS IN THE SEVENTEENTH CENTURY

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## INTRODUCTION

THE formerly so-celebrated correspondence of Guy Patin, and even his name have fallen recently into such undeserved oblivion that it seems timely to the writer that an attempt should be made to revive interest in this famous old French worthy, whose letters written during a period of over forty years (1630-1672) give us such an invaluable picture of the life of the times, not only from the medical point of view but in all its aspects military, religious, political and courtly. As the great French critic, Sainte-Beuve, wrote of Patin's letters:

One finds in these letters, *bon mots*, the news of the day, many curious details on the literature and learned men of the time, above all a lucid and natural manner, with free, bold traits, which point to the life, the mind, the genius of the author. It is a conversation without design, without pretention, often sportive. They are the confidences of one friend to another, full of crudity, of passion, sometimes of grossness, often of good sense, humor, and salt of every kind.

Guy did not write his letters for publication. The first edition was not published, fortunately for him, until he had been in his grave eleven years, and was consequently immune from the vengeance of those whom he so bitterly offended by the freedom of his language. It is to this that with all due allowance for his individual prejudices, which were violent and doubtless unreasonable, the great value of the correspondence is due, for he wrote of persons and events with a liberty, not to say license, which he would certainly not have dared use had he thought his letters would see the light of day, especially as the chief objects of his attacks were those high in place, such as

Richelieu and Mazarin, or powerful organizations, such as the Jesuits, or the Apothecaries. He is equally caustic and personal in his remarks about many of the royal family and the nobility, and this at a time when such writings, if discovered, would have brought severe punishment on their author. Of the works of Patin which were intended for publication he himself says:<sup>1</sup>

Posterity will forego my writings, likewise I have not much desire to leave any of them. There are two sorts of men who write, the wise and the fools, and I know myself to be neither the one nor the other. Furthermore the life that we lead at Paris is too agitated. The practice of our profession takes from us that tranquillity which it is necessary to have when one wishes to write for eternity.

Elsewhere<sup>2</sup> he urges Spon to make "*un beau sacrifice* to Vulcan, to burn his letters."

The formal writings of Guy Patin were not numerous and it must be confessed that their interest was mostly ephemeral. The list of them will be found in an appended bibliography, and if one will take the trouble to read such of them as are available, he will arise from their perusal with the conviction that Patin's fame must rest on his correspondence and not on such evidences of his erudition or medical skill as are contained in his professional writings.

This is not the sole instance in which an individual's posthumous fame has arisen on some other attribute than that to which he personally would have wished the greater importance attached.

Bayle, in his "*Dictionnaire Biographique*" warns that "it is necessary to read his letters with distrust because most of the

<sup>1</sup> Letter to Spon, November 8, 1658.

<sup>2</sup> Letter of January 8, 1650.



political and literary anecdotes in them are false or ill-founded," and Voltaire says of them, "His collection of letters has been read with avidity because it contained new anecdotes which everybody loves, and satires which one loves even more. It serves to show how much contemporary authors who write precipitately the news of the day are

undergone many vicissitudes in the various editions in which it has been preserved to us. Triaire,<sup>3</sup> in the preface to the edition which he undertook to publish in 1907 and which he intended to be complete and definitive, summarily reviews the many defects which appertain to each of them. He says:



*M<sup>o</sup> Guido Patin doctor medicus parisiensis  
medicus et professor Regius*

(1602-1672)

unfaithful guides for history. Such news is so often false or disfigured by malignity, moreover this multitude of petty details is scarcely of value save to small minds."

These criticisms may be true as to the historic value of Patin's letters, nevertheless, as pictures of the life of the day they are invaluable and it must be remembered Guy did not purpose writing history when he penned them.

As occurs with all unauthorized or surreptitious publications the correspondence has

The editors have not contented themselves with throwing aside at their convenience a considerable quantity of unpublished documents, but they have also not hesitated to suppress numerous passages in those which they have published. They have gone further yet and have not recoiled before alterations of the

NOTE. The engraving of Guy Patin appearing on this page is reprinted from the engraving which appeared in *Annals of Medical History*, Vol. I, No. 3, facing page 322.

<sup>3</sup> *Lettres de Guy Patin, 1630-1672*. Nouvelle Édition collectionnée sur les Manuscrits Autographes, etc. Paris, 1907.

text, before falsification of the ideas of the author. They have altered his manuscript, replacing a strong and exact expression, such as he threw it from his pen, by a dull or insignificant word; modifying at their will entire passages, giving résumés of these passages instead of their complete text: attaching, after cutting out without limit, two or three letters together, or on the other hand dividing one letter into many and forging from the pieces patchworks more or less ingenious to supply the solutions of continuity which result from such actions. All the editions, of which the greater part are based on one another, reproduce the errors of their predecessors in adding to them faults of their own, not excepting the last, the only modern one, that of 1846, due to M. Réveillé-Parise.

After this severe arraignment M. Triaire relates the several efforts that have been made to collate the letters with the object of publishing a definitive edition. In 1760 M. Formy, perpetual secretary of the Academy of Berlin, conceived the project but for some reason not stated his plan aborted. In 1846 Réveillé-Parise published an edition at Paris in three volumes which claimed completeness and accuracy, but which Triaire following Sainte-Beuve condemns for inaccuracy and incompleteness.

In 1895 MM. de Montaignon and Tamisey de la Roque had gathered together all the available letters with a mass of correlative information, notes, etc. when the entire collection was destroyed by fire.

Finally Triaire himself, undaunted by the failures of his predecessors, undertook the task and gave to the world in 1907 one volume of what he promised to make the long sought for definitive edition.

Unfortunately Triaire has only published one volume of his edition, and the correspondence contained in it contains only letters written up to March, 1649. He has arranged these letters consecutively, according to date, whereas Réveillé-Parise has collected the letters into groups according to the person to whom they were written. Triaire's arrangement is much preferable.

In 1911 Pierre Pic published a most

delightful collection of selections from the correspondence<sup>4</sup> with a learned and interesting introduction, in which while admitting the great value of the "letters" from the historic and literary point of view he deprecates the style in which they are written and says that when Sainte-Beuve wrote his praise of them he seems not to have been struck by the "two principal defects of Patin, the eternal idle talk, and the ferocious scolding for all that which is not his personal opinion." Pic criticizes Patin's habit of interlarding his letters with Latin, which he says he does not do judiciously and correctly after the manner of Montaigne, but in a foolishly pedantic and often inaccurate way. For those who wish to read what is best of Patin and to acquire the real flavor of his "letters" there is no better edition of them than Pic's, which will certainly stimulate the reader to further researches on the author.

Triaire<sup>5</sup> states that:

The original letters of Patin to the Belins of Troyes are contained in the manuscript inscribed at the Bibliothèque Nationale under the number, 9,538 (Fonds Français. Suppl. Français, 2,034, bis). This manuscript contains 175 letters addressed to Belin père et fils—of which one is not in the hand of the author but bears his signature; 28 letters to Spon, of which 5 have been likewise written by another pen but are signed by Patin; a letter without any address, but manifestly destined to Spon; and one addressed to Charpentier, physician of the Faculty of Paris. An inscription indicates that the manuscript came from the sale of M. Gay, of Lyons, in 1634. Pic<sup>6</sup> states that there is in the Library of the Faculté de Médecine in Paris a collection of 459 letters written by Patin to a number of foreign scientists, among whom he mentions Thomas Bartholin of Copenhagen, Meibomius and Van der Linden of Leyden, Scheffer of Frankfort, Gaspard Bauhin of Bâle, and Wolkhammer of Nuremberg. The letters are written

<sup>4</sup> Guy Patin avec 74 portraits ou documents. Paris, G. Steinhil, 1911.

<sup>5</sup> Lettres de Gui Patin, Libraire Honoré Champion. Paris, 1907.

<sup>6</sup> Guy Patin.

in Latin and the earliest bears the date March 26, 1652, and the latest April 4, 1669. The letters in this collection are not the originals, but copies, some of them by Patin himself, others by his eldest son Robert, acting as his secretary. These letters remain unpublished.

Triaire<sup>7</sup> states there is a manuscript in the Library of Wiesbaden entitled "Borbonia ou singularités remarquables prises des conversations des Messieurs Nic. Bourbon et Guy Patin." It is accompanied by the following recommendations addressed by Patin to his son Charles:

My son, I talk to you as though this was my testament. All these papers which you see here are a farrago, a potpourri in a heap without order, of a quantity of very various things that I have learned or heard spoken by one person or another; but the greater part comes of the talk which I have had during many years cum Viro Clarissimo et Doctissimo Nicolao Borbonio in the Oratory at Paris. There are some points very free and delicate as much of religion as of the government of princes. All that which I have said of the Jesuits, believe as very true but do not repeat it except very à propos. . . . I repeat and recommend you again, read (these papers) and burn them sooner than lend them to anyone.

Nicolas Bourbon, a canon of the Oratory in Paris, was a very learned man and a great friend of Patin's. He was the center of a learned circle which used to meet at the Oratory. Part of the above mentioned manuscript was published with the title "Borboniana."

A curious fact is that Pic transcribes a similar recommendation addressed by Patin to his son which he says precedes the unpublished letters in the Bibliothèque de la Faculté de Médecine. The latter collection was deposited at the École de Santé at Paris by Peyrihle in 1794. Triaire says that M. Ricci stated the Wiesbaden collection was there in 1907.

Is the Wiesbaden collection the original of which the letters at Paris are the contemporary copies by Patin and his son?

<sup>7</sup> Lettres de Guy Patin, p. 103.

#### HISTORICAL INTRODUCTION

Patin's life covers a most interesting period in the history of France. He was born in 1601, and was a boy of nine when Henri iv was assassinated, and he died in 1672 when Louis xiv was at the height of his glory. In order to appreciate his letters and their bearing on current events we must comprehend somewhat of the great changes which took place in the social and political life of France in that period.

During the latter half of the sixteenth century France was torn asunder by the religious wars between the Catholics and the Huguenots. After Henri iii was assassinated at Saint Cloud in 1589, there were five years more of bitter warfare before Henri iv succeeded in winning Paris "by a mass" and entered that city as King of France. At last civil peace was restored and under the wise and conservative government of the new king and his great minister Sully the internal wounds of France healed rapidly with the marvellous recuperative power which she has shown on so many different occasions in her history. A new era dawned. Men were at liberty to worship according to the dictates of their conscience, the Edict of Nantes promulgated by Henri iv in 1598 having granted the Huguenots freedom of worship. With peace came prosperity, growth of commerce and agriculture, with corresponding social and intellectual development. The murder of Henri iv, by the dagger of the monk Ravaillac on May 14, 1610, temporarily interrupted this happy state of affairs.

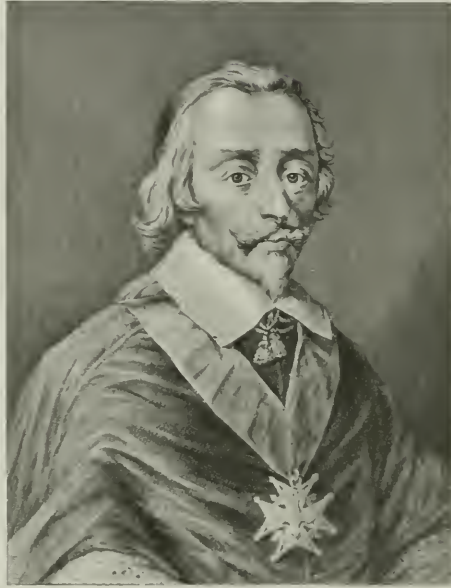
Henri iv was succeeded by his son Louis xiii, a boy of nine years. Until he should reach his majority the affairs of the kingdom were placed in the hands of the Queen Mother, Marie de' Medici, who was completely controlled by an Italian named Concini and his wife, Leonora Galigai, who had been Marie de' Medici's foster-sister. Possessed of rapacity and ambition they not only accumulated vast sums of money from the treasury, but Concini had himself made Marquis of

Ancre, and although he had never been on a battlefield, Marshal of France. Sully was ignominiously dismissed from the council and the regulation of the affairs of the kingdom lay entirely in the hands of these unscrupulous Italians. Henri iv had accumulated in the royal treasury vast sums which the Queen Regent squandered in gifts on her favorites and in pensions on the leaders of the French nobility whom she endeavored to reconcile in this manner to the domination of Concini. Although she gave with a lavish hand it did not suffice to repress their discontent or political ambitions, and revolts broke out on several occasions which were with difficulty suppressed by the Queen Regent's bestowing enormous sums of money on the leaders, such as Condé, Mayenne, and de Rohan. In 1615, the young King married Anne of Austria. Finally in 1617, when Louis was sixteen years old, resenting the manner in which his mother and Con-

cini excluded him from affairs and inspired by deep personal hatred of the latter, he entered into a conspiracy with his favorite de Luynes, a young man of small ability and little conscience, and Vitry, the Captain of his Guards. Concini was seized by Vitry as he was entering the Louvre and, as he resisted arrest, was instantly killed. His wife was arrested and accused of acquiring influence over the Queen by practicing sorcery. She was found guilty and beheaded and her body burned. Louis declared the regency at an end and placed de Luynes at the head of affairs, but the pride of the old French

nobility rebelled against the overwhelming insolence and rapacity of this parvenu as much as it did against that of his predecessor, and they took arms to overthrow him. De Luynes died of a fever in 1621. After his death the Queen Mother, who had been exiled from the court to Blois, became reconciled with the King and with her return to court, Richelieu, whom she had first introduced into public affairs, came into power, and until his death in 1642

was the predominant influence in the affairs of France. To Patin he was the personification of all that was evil, and Patin was only one of many who hated the Cardinal and sought in many ways to accomplish his overthrow. Patin's hatred was partly personal, and as his passions or prejudices were violent in all things so his detestation of Richelieu's government may be largely traced to the fact that at the time of the conspiracy of Cinq Mars in 1642, Richelieu had executed as one of the



CARDINAL DE RICHELIEU  
(1585-1642)

conspirators, de Thou, the son of the historian, a great friend of Patin's. However that may be, Patin lets no opportunity slip for delivering himself of the bitterest diatribes against the Cardinal. It is very difficult to judge Richelieu with impartiality. Coming into power at a time when France was fast slipping into the old times of civil war, the great nobles all heading armed factions, he managed to weather the storms and finally place the real power where it belonged in the hands of the King. The Huguenots and Catholics maintained a condition of armed neutrality, and minor conflicts

occurred from time to time which kept up the smouldering enmity. The internal dissensions of France had weakened her standing with other nations, and her military strength was at the lowest ebb. In the few years since the death of Henri IV, agriculture and commerce had been again disturbed by civil commotions and the improvements and reforms instituted by Sully and his great master were neglected.

One of the first measures was to abase the growing power of the Huguenots. By the Edict of Nantes the Huguenots had been granted certain cities, among them La Rochelle. The latter they had converted into a powerful fortress, supported by a large fleet and army. Richelieu determined to suppress this focus of Protestantism. Taking advantage of an uprising of the Huguenots, Richelieu laid siege to La Rochelle, and after a siege of fifteen months he entered the town in triumph, thereby breaking the military power of the Huguenots in France for evermore. Their military power broken Richelieu treated the Protestants with an astonishing liberality, permitting them to hold their religious beliefs and services, to practice the liberal professions, and even to hold high offices in the army and navy and in political and civil life. Richelieu determined from an early day to check the power of the nobility. In 1626 the comte de Chalais having entered into a conspiracy with a number of others to dethrone Louis XIII and make his brother Gaston d'Orléans king, Richelieu arrested a number of the greatest persons at the Court. The comte de Chalais was beheaded, the duchesse de Chevreuse, the most intimate friend of the Queen, was exiled, some natural sons of Henri who had entered into the conspiracy were imprisoned in the Bastille, and the duc d'Orléans forced to make the most abject professions of loyalty. The most stringent edicts had been promulgated against duelling. They were set at defiance by the nobility until in 1627 when Richelieu had two nobles, the comte de Bouteville

and the comte de Chapelle, executed at the Place de la Grève for fighting a duel. Even the Queen Mother, to whom Richelieu owed his start in power, had to succumb to the terrible Cardinal. In 1630 she persuaded Louis, by working on his fears and jealousy, to disgrace the Cardinal. The latter left the Court and the courtiers all hastened to the apartments of the Queen Mother to congratulate her and to ingratiate themselves. But the King repented in a few hours and Richelieu was recalled. The day was known subsequently as the Day of Dupes, but those who had deceived themselves were bitterly awakened to their error. The Queen Mother was sent away from the Court to Compiègne, whence she fled to Brussels, where she died in 1631. The *garde des sceaux*, Marillac, and his brother, who was a Marshal of France, were arrested. The *garde des sceaux* died in prison and the Marshal was beheaded. Bassompierre, the future Marshal of France, was put in the Bastille for twelve years. Gaston d'Orléans went to Brussels to join the Queen Mother. There they concocted a new rebellion in conjunction with the duc de Montmorenci. The royal forces defeated the army of the rebels at Castelnaudary in 1632. Gaston ran away, and the duc de Montmorenci was executed.

In 1642 the comte de Cinq Mars attempted a conspiracy to overthrow Richelieu. It has been suspected, though never proved, that the King was party to the plot. It was discovered and Cinq Mars with the other leaders executed. Thus Richelieu destroyed the last vestige of feudalism. The Fronde was only a phantom of the former uprisings of the nobility.

On December 1, 1642, to the savagely expressed joy of Patin, the Cardinal died.

Richelieu was fond of literature. He founded the Académie Française in 1635, and rebuilt the Sorbonne. He also established the royal printing press and the Jardin des Plantes, the latter being especially designed as an aid to medical science. Richelieu built and lived in the

Palais Royal, then known as the Palais Cardinal.

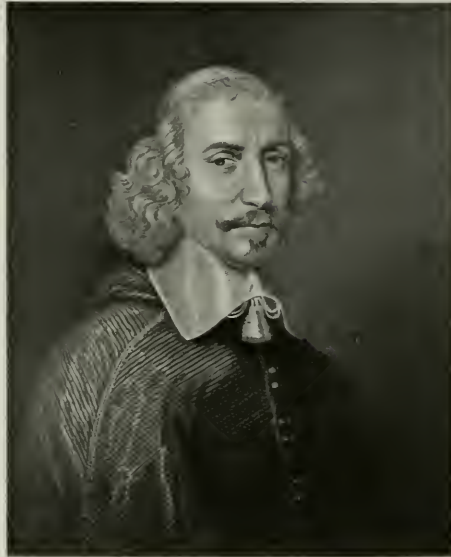
Louis XIII only survived his great minister about six months, dying on May 14, 1643. Once more the throne of France was left to an infant, Louis XIV, aged less than five years, with the regency in the hands of a Queen Mother, Anne of Austria, and strange to say with another Italian cardinal, Mazarin, as chief minister. Mazarin had been brought forward by Richelieu and proved a worthy pupil although undoubtedly not as able or great a man as his predecessor. There is much ground to believe that Mazarin was secretly married to Anne of Austria or at any rate was her lover.

The early years of the new reign were marked by the victories of the great Condé and Turenne, over the Spaniards and Germans in the course of the Thirty Years' War, which dragged on its weary way from 1618 until the Peace of Westphalia in 1648, by which France secured possession of Alsace. The finances of the country were in a terrible condition at this time. The superintendent of finances, Particelli d'Esmercy, was a corrupt Italian. His extravagance and venality necessitated the most onerous taxation. Mazarin was much more avaricious than Richelieu, amassing enormous wealth for himself and his relatives. Places at the court and government positions, as well as in the army and navy, were openly sold, and we can read in Patin's letters the way in which positions in the medical service of the court were sold to the highest bidder, regardless of merit.

Mazarin either got all, or a large part of most of the bargains thus made. The Parlement of Paris had become a center of opposition to the corruption and venality of the court. Mazarin resolved in August, 1648, to break the opposition by seizing three of the members who had taken the most active part. They were named de Blancmesnil, Broussel, and Charton. The last named ran away, de Blancmesnil was easily taken prisoner, but when some guards had

put Broussel in a coach to carry him off, a clamor was raised and the population of Paris rose in revolt. The Parlement of Paris marched to the Louvre followed by an immense mob. After a brief show of resistance the Court yielded and the arrested magistrates were released.

This insurrection and that of the Fronde which developed immediately afterwards were fomented largely by the activity of Paul Gondi later Cardinal de Retz, the coadjutor to the Archbishop of Paris. He was intelligent, wealthy, unscrupulous, and above all a demagogue. Mazarin and the Queen Mother determined at the first auspicious moment to renew the fight, when they felt themselves in a stronger position. Accordingly, in February, 1649, the Queen Mother, with the King and Mazarin, left Paris and went to Saint-Germain, where the prince de Condé, always known as le Grand Condé in French history because of his illustrious military services, took command of the troops which remained loyal, and war was declared on the Parlement of Paris and the rebellious



CARDINAL MAZARIN  
(1602-1661)

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populace. Many of the nobility hastened to Paris to take part with the people, among them the prince de Conti, younger brother of the Great Condé, the duc de Longueville, the duc de Bouillon, and the duc de Beaufort. The latter, a grandson of Henri IV, had received the nickname of the *roi des balles*, or king of the markets, because of his popularity with the market women of Paris and the lowest class of the people. He was very handsome, with affable manners but absolutely devoid of capacity. The prince de Conti was chosen commander of the peoples' army. The coadjutor de Retz displayed the most feverish activity in stirring up the rebellion and maintaining the spirits of the party. He raised a regiment of cavalry which was dubbed in ridicule the regiment of Corinth because cardinal de Retz was titular bishop of Corinth. This civil war on a small scale received the name of the Fronde because of a game which was very popular with the children of that epoch in France. It consisted of throwing stones at one another by means of an instrument like a slingshot, made of a piece of leather between two strings. The police having forbidden this amusement the boys were in the habit of using their weapons on the officers who chased them. Hence those who were opposed to the authorities received the name of Frondeurs.

The so-called war, as Voltaire says, would have been entirely ridiculous had it not been participated in by a king of France, and the Great Condé, and involved the capital of the kingdom. The peoples' troops made many sorties from Paris, which were uniformly repulsed. On their return they would be hooted and jeered at by their fellow-citizens for whose cause they had gone forth to fight. The Parlement having ordered that each house having a porte cochère should furnish a man and a horse to the service, the cavalry raised by the city in this way was known as the cavalry of the portes cochères. The popular cause suffered because the nobility who had attached themselves to it were not animated

by any real desire to further it, but only by selfish ambition and vanity coupled with personal hatred of the Cardinal and Queen Mother. The contemporary revolution in England succeeded because the men who participated in it were united in an earnest resolve to correct abuses. In France though the abuses existed there was a lack of unity among the groups of the peoples' party which, coupled with the unscrupulous ambition and levity of those who were chosen as its leaders, soon led to its disintegration. Some of the nobility actually attempted to negotiate with Spain, then at war with France, for aid against the Mazarinists, as they preferred to designate their antagonists. It must be remembered that the Parlement of Paris was not at all similar to the institution bearing the name parliament in England. In France the term "parlement" was applied to bodies which existed at Paris, Bordeaux and elsewhere in France, composed of lawyers and prominent bourgeois of the several districts in which they were constituted. They were not only legislative but also judicial bodies. The Parlement of Paris awoke to a realization that their cause was being betrayed by the nobility. Condé had wisely refrained from any serious attack on the city of Paris, contenting himself with merely repulsing the irregular militia which sallied from time to time from its walls. The Parlement entered into negotiations with the King's party and a convention was soon signed by which the King granted certain concessions, and Paris opened its gates in April, 1649, for the return of the court. As usual the great nobles who had participated on the popular side were easily brought over to the King by the bestowal of money and places. The reconciliation was of short duration. The Great Condé offended Mazarin and the Queen Mother by constantly reminding them that they owed their return to power to him, and he alienated the Parlement and bourgeois by the contempt with which he uniformly treated them. In January, 1650, Mazarin arrested Condé,





rouge, and the letters express nothing but hatred and contempt towards him. Mazarin died on March 9, 1661.

The last decade of Patin's life corresponds with the first ten years of the personal reign of Louis XIV. While Mazarin lived he was the dominant power in the kingdom, but after his death Louis could truthfully state "l'état, c'est moi." One of the earliest manifestations of his desire for absolute control was the disgrace of Fouquet.<sup>8</sup> Fouquet as minister of finance, though a man of superior ability, had thrown the finances into extreme disorder, by reckless extravagance. He had accumulated an immense personal fortune. In 1661 he gave a magnificent fête to the King at his superb château de Vaux, the glories of which outshone those of the royal palaces. The King was angered at the display, but it was probably only the culmination of his discontent at the minister against whom Colbert had for some time been animating the King's suspicions. A few weeks later in September, 1661, Fouquet was arrested. His trial continued for three years. At the end he was found guilty. Nine judges wished him executed, thirteen were for imprisonment for life. Fouquet had been a great patron of letters, La Fontaine, Pellisson, Mademoiselle de Scudéry, and Madame de Sévigné all owed much to his patronage and have defended his memory. His place was given to Colbert, under whose able administration was finally grouped not only the finances, but also the direction of the beaux-arts, agriculture, commerce, public works, and the navy. Patin naturally sympathized with Fouquet. He termed Colbert a "man of marble" and could see no good in one of the greatest of the great ministers of Louis XIV.

Another man who contributed much to the glory of the reign of the *roi soleil* was

<sup>8</sup> Those who are readers of Dumas will recall the *Vicomte de Bragelonne*, in which romance the disgrace of Fouquet forms the principal theme. The *Letters of Madame de Sévigné* contain much information about his trial.

Louvois, his minister of war. He was the first to ordain a distinctive military uniform for the different units of the army; to introduce the use of the bayonet attached to the musket; to organize magazines for the storage of powder, arms and munitions in different places whence they could be readily distributed in case of need, and he organized the army into special divisions: cavalry, artillery, infantry, and subdivided these into special bodies trained for their various duties: dragoons, hussards, grenadiers, fusiliers, etc. He also established a special corps of engineers and first brought into use portable pontoon bridges, and he was



JOHANNES ANTONIUS VAN DER LINDEN  
(1609-1664)

the first to arrange for camps of manoeuvre in times of peace. Under Louvois, the great military engineer Vauban constructed the fortifications along the frontier which for so many generations held the external enemies of France in check. Vauban was

the greatest master of fortification and of the construction of siege works and his ideas and inventions completely changed the methods of making war.

To the military successes of Louis XIV, Colbert contributed greatly by his able administration of the navy. Mazarin had left this important arm in a deplorable condition. Colbert built up a wonderful merchant marine and used it as a feeder for the establishment of a navy which soon rendered France a formidable power at sea. He brought foreign shipbuilders to work on the construction of new warships, and built huge yards at various ports. Schools of navigation, of hydrography, and of naval warfare were established. Rank in the navy was established in order to attract men of birth and intelligence, and an *inscription*



GABRIEL NAUDÉ  
(1600-1653)

*maritime* or naval reserve was organized among the maritime population. In external affairs the glory of France was equally well maintained by an able minister, de Pionne, who died in 1671, the year before Patin's death. Spain was in decadence which the

ambition of Philip II had begun. Italy was constantly at war. Germany was in the same chaotic condition and Austria so weak that she was obliged to appeal for aid to repel the menaces of the Turks. England had just restored the Stuarts. Holland was the richest and actually the most menacing of the rival countries, chiefly because of its naval power. Louis XIV availed himself skilfully of the weaknesses of her neighbors to aggrandize France. Though Patin speaks contemptuously of many of the acts by which Louis supported his policy and achieved his objects their success was obvious, and until 1685, the year of the Revocation of the Edict of Nantes, the prosperity of France and the glory of its King steadily increased.

In 1665 Philip IV of Spain died, leaving a son Charles II, who was the issue of a second marriage. When Louis XIV was married to Marie Thérèse, Philip's daughter by his first wife, in 1659, it had been stipulated that she should renounce her rights of succession to the Spanish crown and in lieu thereof the Spanish government was to give her a dot of 5,000,000 gold écus. Mazarin calculated that Spain would be unable or unwilling to pay this immense sum and that the way would thus be paved for the French to claim the succession. When Philip died in 1665, the dot not having been paid, Louis XIV at once claimed for his wife her rights of succession in the Low Countries, also asserting that as his wife was a minor at the time of her marriage her father had no right to renounce her succession in her name. Upon the refusal of the Spanish government to comply with his demand Louis invaded Flanders in 1667. Its conquest was easy. Town after town yielded. Holland alarmed at this success formed an alliance with England and Sweden, and Louis decided not to proceed further in his triumphal career. The treaty of Aix-la-Chapelle was concluded with Spain in 1668. Louis was bitterly offended by the action of Holland and determined to be avenged on the bourgeois

commonwealth. By a large bribe he seduced the Swedes from the alliance. His brother Philippe d'Orléans who was a very worthless individual had married Henrietta, the sister of Charles II, who was known by the official title of Madame. She was chosen to negoti-



FRANÇOIS GUÉNAULT  
(15—1667)

ate with Charles II in 1670 and soon succeeded in persuading and bribing her brother to abandon the Hollanders and enter into an alliance with the French King. On her return to the French court Madame died suddenly. Suspicions of poisoning were at once aroused but they were certainly groundless. Bossuet preached a famous sermon in her honor. The neutrality or aid of the Emperor and the various petty potentates of Germany was secured, and the way being thus prepared, in the spring of 1672 France declared war on Holland. Although the French won great military successes at its outset, this war was the beginning of the misfortunes which darkened the last years of the reign of Louis XIV. Within a few years England and most of his other allies had abandoned him.

New alliances were formed to combat his overweening ambition. Against Prince Eugene and Marlborough the French armies sustained a series of terrible defeats. The Prince of Orange, his most determined foe, became King of England and the old French King saw the splendor of his reign sink in an obscuring twilight. By the Revocation of the Edict of Nantes in 1685 France lost 500,000 of her best citizens, and much of her commercial prosperity. Patin died in the spring of 1672 just at the dawning of evil times. During his life he had witnessed the gradual emergence of France from the chaos of the Fronde to the firm although despotic government of an absolute monarch. His letters give many illuminating reflections of the stirring events of which he lived in the very center and many of the chief actors whom he knew. It would have been hard for him to write without bias, and though the pictures he paints are somewhat lurid, they are certainly honest representations of events as he saw them from day to day. Patin was an ardent student of philosophy and theology and his letters are full of information about the Jansenist controversy and the many other disputes with which the learned of the seventeenth century filled so many volumes now condemned to oblivion. It would seem that in his later days the bitterness of political squabbles had been replaced by the odium theologium. Although he was a vigorous opponent of the dominant party, hating the Jesuits and denouncing monks on every possible occasion he nevertheless managed not to make himself conspicuous enough to undergo any persecution for his opinions, and he apparently died in the Roman Catholic faith and was certainly buried according to its rites.

#### FAMILY AND EDUCATION

As he signed himself frequently "Bellovacensis" (of Beauvais) many writers assert that Patin was a native of that city. Réveillé-Parise says he was born at La Place, a small hamlet in the commune of

Hodenc-en-Bray in which the Patin family held a fief from time immemorial, and in 1898 the municipality of La Place erected a monument to his memory. In a letter to Spon,<sup>9</sup> June 14, 1644, Patin himself says that his natal place was a village three leagues from Beauvais, in Picardy, named "Houdan" which was the name borne by Hodenc-en-Bray until 1770, and according to Triaire, Guy Patin was born there at the Ferme des Préaux, on Friday, August 31, 1601.

His family was typical of the best type of bourgeois. Patin states that he had traced it back for 300 years, during which period some had been notaries at Beauvais, some linen merchants at Paris, some soldiers and others farmers. Patin's grandfather was a soldier "comme tout ce temps-la fut de guerre." His father François had studied law at Orleans and Bourges and would have practiced his profession at Paris had it not been for the death of Henri III, and the siege of Paris which followed thereon. He must have been a Huguenot sympathizer because he was made a prisoner by the Leaguers and had to pay a large ransom to secure his release. Guy says that his grandmother had to pledge her wedding jewelry and a belt of silver with a goldsmith

at Beauvais to raise the money and that many times he had heard her tell about it, "weeping and detesting the misfortunes of those times."

Patin inherited his parent's hatred for the Guises. The League had been formed by their adherents and they aimed at procuring for their family the succession to the throne, either by the deposition of Henri III, or, if not by successful rebellion, in the event of his death, as he had no direct heirs and Henri de Navarre, the nearest in the succession was a Huguenot. Henri III forestalled the plans of the Guises and their League by the murder of the duc Henri de Guise and his brother the Cardinal. The duc de Guise was known by the nickname Balafré, the scarred, because of a huge cicatrix which disfigured his face. Patin writes Spon (December 24, 1658):

M. de Guise-le-Balafré said formerly:

By war we gain  
Credit and money

He was the duc de Guise who was chief of the League and who Henri III by a wise and generous council caused to be killed at Blois, in the year 1588, on Christmas Eve. My late father, who hated the League and the Leaguers, said when I was yet young, that this massacre was the best coup that this king made in his life.

Gaspard D'Auxy, Seigneur de Monceaux and Baron de Houdan, recognizing the honesty and ability of François Patin persuaded him to give up his career at the Paris bar and come back to Picardy to manage the business affairs of his family and estate. He made Patin many generous promises which Guy says he did not fulfill. The great man did procure for his man of affairs a virtuous and well to do wife of good family, Claude Manessier, having in mind thereby to fix him in the neighborhood and keep him away from Paris; otherwise Guy says he was ungrateful and avaricious and that he ruined what would otherwise have been the very successful career of the elder Patin at Paris.

<sup>9</sup> Charles Spon was born at Lyons, December 15, 1609. His grandfather was a native of Ulm in Suabia, who had settled in commerce at Lyons. Charles was sent to Ulm when twelve years old to study belles lettres. In 1625 he left Ulm for Paris where he studied philosophy, mathematics, astronomy and medicine, but he received his M.D. at Montpellier in 1632. He practiced a short time at Pont-de-Vesle but went to Lyons where he settled in 1635. He acquired a great reputation, so much so that Cousinot, premier médecin of Louis XIV, sent him in 1645 the appointment of médecin du roi par quartier, as a recognition of his merit. He died at Lyons, February 21, 1684. Spon was a great Latin and Greek scholar. He published the "Prognostics of Hippocrates" in Latin verse in 1661, entitled "Sybilla Medica," and dedicated it to Gui Patin. He also composed a myology in Latin verse but it was only published posthumously by Manget in his *Bibliothèque anatomique*. He edited Schenklius' "Observations Medicae" in 1644, and Cardan's "Opera," in ten volumes folio, in 1663.

Patin in a letter to Falconet (July 15, 1661) gives another version of the reason his father left Paris. He writes, "My father and mother were good people, who retired to the country to get away from the evil (malice) of Paris, where they lived *ex auito fundulo* until they died."

The Patins had seven children, five daughters and two sons. Guy's brother settled himself in Holland, and the five daughters all married and established themselves with the inheritance of their mother's money. The regret of the father at his own mistaken step, led him to the determination that Guy should fare better.

For this reason he began his son's education at a very early age, one of the steps he took being to cause his son to read Plutarch's "Lives" aloud while he would correct his pronunciation. At the age of nine years he placed him in the Collège at Beauvais, and afterwards sent him to the Collège de Boncourt in Paris, where the boy was two years a pensionnaire, taking the course in philosophy. An offer of a benefice was made to Patin, by some of the nobility. To accept this it was necessary for him to become a priest which he refused to do, thereby greatly angering his mother who did not overcome her resentment for five years, although his father approved his course. A friend of his advised him to study medicine and he did so at Paris from 1622 to 1627 when he received his degree, at which, as he tells us, his mother, as well as his father, was well pleased and helped in the purchase of books and other necessary expenses. Bayle states on the authority of Drélincourt that Patin eked out a living in Paris, while pursuing his studies, by proof-reading; and there is a tradition that the anonymous friend who, Patin says, urged him to study medicine was Riolan, the anatomist of Paris, who is chiefly remembered for the bitterness with which he fought against Harvey's demonstration of the circulation, though Patin does not refer to him in any way in his autobiographical letter to Spon, in which, from

its character, one would think he would have mentioned so great an influence in his life.

This statement is also made in "Nau-deana et Patiniana:"

By a fatality too common to men of letters he was compelled to become a proof-reader after having received his degree. On seeing some of his corrections, M. Riolan, the celebrated physician, who was regarded among his confrères as the arbiter of reputations, bestowed on him his esteem and friendship, and introduced him to the world.

#### MEDICAL EDUCATION IN PARIS

The "Letters," as would be expected, are full of references to medical education as it prevailed in the University of Paris. As Miniville<sup>10</sup> emphasizes, the teaching consisted entirely in the exposition of the works of Hippocrates, Galen and the lesser ancients. There was no attempt at clinical instruction; and medical learning, as manifested by the professors, consisted solely in a display of great erudition in the texts of Greek and Latin authors. In order to enter on the study of medicine in the Faculté de Médecine at the Université de Paris, it was necessary first to possess the degree of Master of Arts or else have studied philosophy for at least two years, and then there were three steps to the degree, that of bachelor, licentiate and finally doctor. After two years study in medicine, if the scholar was twenty-two years old, he could take his examination for his bachelorship. He had to produce first a certificate of good conduct from three physicians, to declare that he belonged to the Catholic Church, and to swear on the Bible that he would be present at the masses said before the Faculté de Médecine. After these formalities were complied with he was questioned during three days on the studies he had pursued and then had to comment on an aphorism of Hippocrates. If he succeeded in passing this ordeal he took an oath that he would defend the decrees, practices, customs and statutes of

<sup>10</sup> La médecine au temps d'Henri IV.

the Faculty; that he would show respect and honor to the Dean and all the Masters of the Faculty; that he would defend the Faculty against whosoever would undertake anything against its statutes or honor, and above all against those who practiced medicine illegally; and that he would be present in his robes at all the masses ordered by the Faculty, arriving before the end of the Epistle and remaining until the end of the service, and that he would attend the masses for the dead, and the funerals of the Masters (professors) under penalty of a gold crown for failure to do so. Minivielle, whose delightful little book contains the most explicit account of the life of the medical student at Paris in the sixteenth century, states that after having thus been admitted a bachelor in medicine, the student passed the next two years in sustaining theses, studying, sometimes visiting sick persons with the masters, with an occasional opportunity to witness an anatomical demonstration on the human body.

The bachelors in medicine had to sustain certain theses in public, or as we would now term it, undergo public examinations on medical subjects. These were of two kinds, the *thèse quodlibétaire*, which might be chosen from any subject in medicine or physiology, on which the candidate was questioned from six in the morning until noon, by nine doctors, the examination being conducted entirely in Latin, and the *thèse cardinale*, so called after the Cardinal d'Estouteville, who instituted it in 1452, at the time when he was engaged in reforming the teaching at the University of Paris. The *thèse cardinale* was sustained by the candidate for licence in much the same manner as the other, but its subject had to appertain to hygiene. Minivielle quotes some of the bizarre and absurd topics utilized as subjects for the theses, such as: "Was the cure of Tobias by the gall of the fish natural?" "Is it salutary to inebriate oneself once a month?" "Are beautiful women more apt to bear children?" "What think you of the saying in *nino veritas*?"

Guy Patin's first *thèse quodlibétaire* sustained December 19, 1624, had for its title "Estne feminae in virum mutatio a *ἀσβύχτος*?" which he wisely decided in the negative. On November 27, 1625, he took the negative side in a thesis having for its proposition "An praegnanti periculosè laboranti abortus?"

On March 26, 1626, for his cardinal thesis he chose for his subject "Daturne certum graviditatis indicium ex urina?" again taking the negative side. Pierre Pic<sup>11</sup> remarks that contrary to the usual practice Guy concludes for the negative in each of his three theses and speculates whether this was not an indication of his character, which was already contradictory.

The first thesis at which Patin presided was that of G. Joudouyn, December 16, 1627, entitled "Utrum *μητρομανια* balneum?" (Are baths useful in uteromania?). Patin is said to have suggested the subject to Joudouyn because of the case of a young girl whom he had attended and who it is said her mother wished him to marry. (Letter to Falconet, September 19, 1659.)

At first the theses were written and presented in manuscript to the Dean of the Faculté de Médecine, but toward the end of the sixteenth century the students began to have them printed and as we all know the custom of printing the theses for the doctorate has continued to the present time in France.

After two years passed in this manner, the bachelors presented themselves for examination for the licentiate. Each candidate had to present himself before the docteurs-regents of the Faculté, at the doctor's home, where he was privately examined by that worthy. Then the Faculté would hold a meeting at which a secret ballot was cast by its members, as to whether the candidate should be licensed. If successful he did not at once receive the full licence but was first admitted to the ranks of the licentiands. These happy ones formed a procession and preceded by

<sup>11</sup> Guy Patin.

the beadles of the Faculté, rendered a ceremonial visit to the official bodies in Paris, that is to the members of the Parliament of Paris, the ministers of state, the provost of the merchants and the aldermen, requesting their presence at the solemn ceremony which marked the actual bestowal of the license on those who had passed their examinations. This ceremony of the "Paranymph" derived its name from the ancient Greek marriage custom in which a young man, the best man of the bridegroom, always conducted the latter to the residence of the newly-wedded pair. In this ceremony of the Faculté, the bridegroom was the licentiate, the bride, the Faculté de Médecine and the paranymph was the Dean who united the licentiate in solemn wedlock to the Faculté de Médecine. Some days later there was another grand ceremony in the hall of the Archbishop's palace in Paris, at which the Chancellor of the Faculté de Médecine, who was a canon of the Archdiocese of Paris, gave them the benediction of the church, and afterwards all those present assisted at a grand mass at Notre Dame.

After having become a licentiate, the young man was authorized to practice and teach medicine, but in order to obtain a vote in the deliberations of the Faculté it was necessary for him to go yet further and secure the degree of Doctor of Medicine. This required a further investigation into the learning and morals of the candidate and he had to sustain another thesis, the *resperie*. Two doctors of the Faculté propounded a question to be discussed by the candidate with them. If he passed this ordeal successfully, the last act of his career as a medical student took place in the grand hall of the École de Médecine, when he received the square bonnet worn by the doctors of the Faculté.

#### THE FACULTÉ DE MÉDECINE

To be a member of the Faculté de Médecine de Paris was to Guy the *ne plus ultra* in human affairs. The jealousy with

which he guarded the prerogatives of its members was manifested from the time when he first was admitted to its ranks. In Patin's time the question of precedence loomed large in daily life and gave rise to innumerable squabbles. He tells Falconet (November 5, 1649) of one in which he was engaged early in his professional career:

I remember twenty-three years ago, I being a young doctor and not yet married, I was asked to carry the canopy (le ciel) in a procession of the Holy Sacrement, the day of the grand-fête, which they celebrate here with all sorts of solemnities. I knew about how much I should be esteemed and also how my colleagues had acted in like case. Being by them incited to do this I promised them I would on condition that in my quality of docteur-régent of the Faculté, I should have the first place, not ceding it to any but counsellors of the sovereign court. This was promised me, but when I came to take it, with my scarlet cape, as we are clad when we pass doctors (receive the degree), dispute, or preside (at meetings) or when we attend the funeral of one of our colleagues, two men wished to have the first place before me, of which one was *conseiller aux monnaies*, the other *secrétaire du roi*. I alleged that it was due me. All the notables of the parish who were gathered for the procession, assembled at once, among them old M. Séguin, premier médecin de la reine, who died Dean of our company, January 27, 1648, who said in my favor that I was as great a doctor as he in our Faculté and in Paris. There was also a counsellor of the court, some masters of accounts, and an old advocate, who awarded me the precedence. Those who lost against me gave way at once, out of respect, they said, for the procession, but they grumbled that I should precede them.<sup>12</sup>

<sup>12</sup> Voltaire in "Le Siècle de Louis XIV," speaking of the spirit of discord which prevailed in France at the end of the reign of Louis XIII, says that it prevailed throughout the kingdom, extending from the court and Paris to the smallest communes and parishes, in which processions fought one another for the honor of their banners. Often the canons of Notre Dame came to actual fisticuffs with those of Sainte-Chapelle, the Parlement of Paris and the Chambre des Comptes fought one another for precedence actually inside the church of Notre Dame the day that Louis XIII placed his kingdom under the protection of the Virgin Mary, August 3, 1638.

In order to form a just conception of Guy Patin's life and letters some knowledge of the institution about which his whole life centered and which absorbed the greatest part of his energies is absolutely essential. The life interest of Patin was centered in the *Faculté de Médecine de Paris*. Many men devote their lives to a cause, some to a person and not a few to an institution. The latter was avowedly and determinately the case with Patin. From first to last in almost all of the numerous letters which have been preserved to us, he refers to it or to matters connected with it. The preservation of its rights and privileges, the admission of only those whom he considered worthy to its ranks, the expulsion of those who had proved themselves unworthy of its fellowship, the election of suitable officers to guide its policies, the increase of its authority and wealth and the extension of its usefulness, occupied his mind almost as an obsession. No praise was too fulsome for those who furthered its cause and no abuse too savage for those who dared to attack it. As many of its peculiar attributes brought the *Faculté* into relation with public men and matters, a very general interest is attached to the life and letters of Patin from the light thrown by them on various political, economic, and social concerns in France during his lifetime, and accordingly his letters, in addition to their personal characteristics afford a mine of information to the student of French social history during the seventeenth century. The teaching of medicine at Paris was for a long time in the hands of the ecclesiastics, and there was no distinct *Faculté* or *Collège* for that purpose at the University of Paris until 1281. From that date the *École* or *Faculté de Médecine* forms an entity, and had its own corporate existence in the university body.

Wickersheimer<sup>13</sup> in his most interesting book on the history of medicine in France in the sixteenth century writes of the

<sup>13</sup> *La Médecine et les Médecins en France à l'époque de la Renaissance*, Paris, 1916.

changes of location the college underwent as it grew in importance with the increase of its students, and gradually eclipsed its ancient rival, the Medical School of Montpellier. At the present time all that remains to recall its former locality to those who search for its traces is to be found in the names still retained by some of the small streets remaining on the left bank of the Seine, near the Pont St. Michel, the rue de La Bûcherie, the rue de Fouarre, etc., the latter so called from the straw on which the students used to sit. Yet the grand buildings of the present Medical School and its adjuncts are in the immediate neighborhood, and in walking through the rue des Écoles or some of the other new streets, we can realize that for eight hundred years the region has been the home of successive generations of medical teachers and students, and some of the old buildings, such as the church of Saint Severin or the church of Saint Julien-le-Pauvre, though in such a changed environment, remain as monuments of the historic past. In former times religious observations formed a prominent part in the life of the medical school at Paris. It was pre-eminently Catholic, losing no opportunity to express its devotion to the Faith, expelling from its ranks those suspected of heresy, and during the wars of the League recognizing, under the name of Charles x, the old Cardinal of Bourbon as King of France in opposition to Henri iv. There were many church services which both teachers and students were bound to attend.

The term, *Faculté de Médecine*, did not imply a few professors or teachers of medicine, but a corporate body of physicians under the control of which was placed the medical teaching of the University, and the control of the practice of medicine in the city of Paris. There were similar faculties elsewhere in France, at Montpellier, Bordeaux, Toulouse, Orleans, Bourges, and many other cities, all possessing locally the same privileges as regarded the exercise of their profession.



The most aged member of the *Faculté*, known as the *Ancient*, became solely by nature of his age, an object of respectful veneration on the part of his colleagues. He received double the usual amount of fees or honoraria due to members of the *Faculté* on the occasion of examinations or other functions, and in case of the incapacity of the Dean from any cause, the *Ancient* had the right to convoke an assembly of the doctors. The executive chief of the *Faculté* was the *Doyen* or Dean, elected for a term of two years. This was a busy and important position. Besides presiding at the meetings of the *Faculté*, he was present at examinations of students for the various degrees and the readings of the theses. The Dean likewise presided at the examination of those who presented themselves for the right to practice as surgeons and apothecaries, over both of which bodies the *Faculté de Médecine* had control, and he inspected at intervals the shops of all the apothecaries in Paris to ascertain that they obeyed the laws regulating their traffic and that the drugs, they kept and sold, were pure. He had control of the financial affairs of the *Faculté*, was the guardian of its seal, and especially of its interests when the *Parlement* of Paris or any other court or power attempted to infringe its rights. As Dean he was one of the governing body of the University and also a member of the *Parlement* of Paris.

Upon the death of a King of France the *Ancient* and the Dean were both required to attend the autopsy on the defunct, and likewise his funeral, clad in their official robes of scarlet with caps of the same color.

The title of *docteur-régent*, which Littré in his dictionary says applied to one who instructed publicly, appertained to all members of the *Faculté*, and until 1505 the function of teaching was performed by any member who felt called upon to do so. In 1505 two teaching chairs were established, and thenceforth many of the *docteurs-*

*régents* never actually taught classes, although the professors only held the chairs for two years at a time and all members of the *Faculté* were eligible for election if they desired to become candidates. All the *docteurs-régents* continued to take part in the examinations and readings of the theses.

The greatest honor which could befall a physician of the *Faculté de Médecine* de Paris was to be elected its Dean, and this honor fell to the lot of Patin on two occasions, it being the practically invariable custom to re-elect a Dean at the end of his first term. Although Patin, in the years before the choice fell on him, assumes to belittle the position and pretends that it is an honor which he does not desire, it is easy to see from the change in his tone, after elevation to the position, that it had long been an object of ambition for him.

In a letter to Spon, November 24, 1642, Patin relates how near he came to being chosen. The election of a dean was quite a complicated affair. One was held every two years, on the first Saturday after All Saints' Day. The *Faculté* met in solemn conclave. The Dean whose term was ending read a report of the period during which he had held office. The names of all the doctors present were then written on separate ballots, and those of the junior doctors deposited in one urn, and those of the senior doctors in another. The Dean shook the ballots up and then drew two from among the juniors, and three from among the seniors. The five doctors thus chosen by lot took an oath to designate the most worthy for the position of Dean. They retired to the Chapel, where they chose three names by a majority vote, two seniors and one junior. Three tickets bearing these names were placed in a hat and the Dean drew one of them from it, and the happy owner of it became Dean for the ensuing two years. Patin tells Spon that his name "danced in the hat" with those of Messieurs Perreau and de la Vigne but that "the lot is always contrary to me," and Monsieur de la Vigne

won the election. Writing to Belin, fils,<sup>14</sup> November 16, 1652, Patin says that he has sent him the jeton, or medal, struck by order of the Faculté in honor of his decanate. These jetons were always struck to commemorate the elevation of a Dean of the Faculty. In the ANNALS OF MEDICAL HISTORY, Volume 1, Number 2, a number of them including that of Patin, are reproduced from the numismatic collection of the Army Medical Library at Washington, with a most interesting description of them by Dr. Albert Alleman.

Patin writes to Falconet (June 28, 1652):

The custom is to put the arms of the Dean on one side and those of the Faculté on the other. I have retained the latter, but instead of putting those of my family which are gules with a gold chevron, accompanied by two gold stars *en chef*, and a hand pointing in gold, I have put my portrait. The engraver skilful as he is, has not caught the resemblance very well, especially the eye, but there is no remedy.

Patin's greatest object in life was the preservation and if possible extension of the privileges and authority of the Faculté de Médecine de Paris. Page after page of his correspondence is devoted to this theme and he constantly speaks with pride, in his letters to the Belins at Troyes, to Spon at Lyons, or to other doctors in the provinces, of the glory of the Faculté and of the proofs which it gives; from time to time of its strength in its various contests with the apothecaries, the surgeons or other enemies who strove to encroach on its prerogatives. Thus he writes in February, 1558, that he has seen in the coffers of the Faculté, a royal decree entitled "Nouvelle confirmation de l'an 1132." He adds a disquisition on the powers possessed by the Dean, he is "the master of the schools, he has all the keys; fourteen handsome registers, all the records, and all the money,

<sup>14</sup>The Belins, with whom Patin corresponded, were a father and son each named Claude who practiced medicine at Troyes, where there were also several other physicians of the same family. Their names are preserved solely in the correspondence of Patin.

of which he renders an exact account every year, he is *vindex disciplinae et custos legum*. Our statutes call him *caput Facultatis*."

He consoles himself for his defeat, by the reflection that the honor is accompanied by "a very heavy and very difficult responsibility." Writing to Falconet, November 4, 1650, he says: "I have been an elector many times, I have even been chosen and put in the hat three times, and each of the three I have remained at the bottom of the hat, and if ever they put me in it again, I shall not be vexed to remain there."

The lot finally proved favorable to Patin and on November 5, 1650, he was elected Dean. Although he affects to speak somewhat deprecatingly at times, saying, "I have already enough business without this," nevertheless, much more frequently his pride in the position pours forth. On December 1, 1650, he gave the customary banquet to the members of the Faculté, and he writes to Falconet the next day that thirty-six of his colleagues had enjoyed his hospitality:

I never saw so much laughing and drinking by serious men, and even our ancients; it was the best wine of Bordeaux which I had chosen for the feast. I entertained them in my chamber where, over the hangings were displayed the pictures of Erasmus, the two Scaligers, father and son, Casaubon, Muret, Montaigne, Charon, Grotius, Heinsius, Saumaise, Fernel, de Thou, and our good friend M. G. Naudé, librarian of Mazarin . . . there were yet three other portraits of excellent men, of the late M. de Sales, bishop of Geneva, M., the bishop de Bellay, my good friend; Justus Lipsius, and finally François Rabelais, for which one has offered to give me twenty pistoles. What say you to this assemblage? Were not my guests in good company?

Writing to Spon (March 6, 1656):

When I shall receive your picture I will put it in a good place with Fernel, Ellain, Duport, Seguin, Marescot, Nicolas Piètre, the late M. Riolan, André du Laurens, the late M. Gassendi, Salmassius, Heinsius, Grotius, Naudaeus, Muret, Buchanan, the two Scaligers, Lipsius,

Thuanus (de Thou), Crassot, Passerat, Campanella, Fra Paolo Sarpi, Casaubon, the Chancellor de l'Hospital, P. Charron, Michel de Montaigne; the French author otherwise called Rabelais, the divine Erasmus, etc.<sup>15</sup>

In a letter quoted above, writing to Belin, fils, January 14, 1651, Patin says:

I will tell you that our Faculté made me Dean the fifth of last November, a charge to which I had been elected and named four other times; it is difficult and takes much time, but it is honorable. . . . My wife says there is much good fortune for the end of the year, her husband, Dean, her eldest son, doctor, and a good house which she greatly wished for.

Patin's pride in the Faculté de Médecine is well expressed in a letter<sup>16</sup> in which he says:

All individual men die, but associations do not die. The most powerful man since one hundred years in Europe without being a crowned head, was the Cardinal Richelieu. He made the whole earth tremble, he caused terror at Rome; he treated rudely and shook the King of Spain, and nevertheless he was not able to make us receive into our company the two sons of the Gazetteer (Renaudot) who were licensed but who will not be doctors for a long time.

No one could have had a higher idea of the powers of the Dean than Patin and once, at least, he got himself into trouble by an undue exercise of them. Doctor Pic gives the story with some additional information supplied by the researches of his friend, M. Delalain. Jean Chartier, a docteur-régent, published without the approval of the Faculté de Médecine, a book on anatomy. Patin removed his name from the list of docteurs-régents, and Chartier appealed to Parlement for reinstatement. The court of the Parlement rendered its judgment, July 15, 1653, in favor of Chartier and ordered that he should be reinstated as docteur-régent; that Patin should pay him 48 livres parisis in amend;

all the expenses of his reinstatement, and two-thirds of the costs of the trial, the other one-third to be paid by the other docteurs-régents, Germain Hureau, and Daniel Arbinet, who had acted with Patin in the matter; and these three were enjoined from any act or word interfering with Chartier in the future enjoyment of the rights and privileges of his position in the Faculté.

He tells Belin he has a copy of all the names and surnames of the licentiates and doctors according to their order of passing at the École de Paris for more than three centuries, with all the memorable events in the Faculté. In a letter to Belin, fils, January, 1651, he tells of a book written by M. Moreau, "De Antiquitate Facultatis Medicæ Parisiensis," which is not yet published and he fears will not be because of the ill health of Moreau, but which would be very curious and beautiful. He tried to secure all the biographical details possible about the lives of those who had been physicians at Paris. He writes to Spon (December 30, 1650): "There is scarcely a bachelor or a licentiate, much less a doctor of our schools for upward of three hundred years of whom I cannot tell something, even if only a little."

In a letter of the same date (December 30, 1650) to Falconet he tells him how he had received some of the old registers of the Faculté which had disappeared.

An honest friend of mine, knowing that I had been elected Dean of our Faculté in the place of M. Jean Piètre, the 5th of last November, has replaced in my hands an old register of our Schools, an abridged letter almost Gothic, from the year 1390, in which is noted every two years the number of doctors and of licentiates.

Those of the doctors are sometimes 15, 20, 25, going even to 40. I lent it to M. Riolan who found in it the mention of an honest man who left by will a manuscript of Galen which he had, *de usu partium*. This legacy dates from the year 1009, and is of further consequence because it proves against those who would doubt it, that in that year and before it, there was a Faculté de Médecine at Paris.

<sup>15</sup> Pic publishes as an addendum to his Guy Patin the pictures of all those who figured in Patin's gallery.

<sup>16</sup> Letter to Spon, December 6, 1644.

A curious feature in the medical life of the seventeenth century can be found in a study of the family relationship which prevailed among the great men of the profession, constituting veritable dynasties, in whose hands were held the great preferments and choicest clientele. The Riolans, Piètres, Moreaus, Séguins and many others might be adduced as interesting instances.

Jean Riolan, the elder, transmitted his fame and position to his son Jean. The elder Riolan's wife was Anne Piètre, daughter of the first Simon Piètre. Charles Bouvard, first physician to Louis XIII and superintendent of the Jardin des Plantes, was a brother-in-law of Riolan, and Bouvard's daughter married Jacques Cousinot, first physician to Louis XIV. Thus it will be seen that Bouvard, the Riolans and Cousinot were connected with the Piètres, the most prominent medical family in Paris for a period of many years. The first of the family of Piètre to become prominent in medical affairs was Simon Piètre (1525-1584). He was a Huguenot, and his life was saved during the Massacre of St. Bartholomew by his son-in-law Riolan, who concealed him in the abbey of St. Victor. In spite of his religion he was made physician to Charles IX by Catherine de' Medici. Curiously, Ambroise Paré, also accused of Huguenotism (perhaps secretly a Huguenot) was also favored by Catherine and was first surgeon to Charles IX. The first Simon Piètre's son, also named Simon (1565-1618) married the daughter of the celebrated physician Marescot. He succeeded Gourmelen, the infamous enemy of Ambroise Paré, as professor of medicine at the Collège Royal. Two of the brothers Nicolas and Jean Piètre were also physicians in good practice at Paris. There were five doctors of the same family who figured largely in the medical profession at Paris during the seventeenth century under the name of Akakia, a Greek version of their real family name, Sans-Malice. One of them, Martin Akakia, was a brother-in-law of one of the Séguins and succeeded him as

Professeur du Roi at Paris. Patin says that he resigned his chair in 1655, after having held it for many years without daring to give a public lecture.

There were also three or four Moreaus and equal numbers of Séguins who shared or transmitted their various dignities among one another.

Whatever may be thought of the narrowness or ultra-conservatism of the *Faculté de Médecin* in Patin's time it should in justice be conceded that it attempted to place medical education on a higher plane. Patin writes to Belin (July 29, 1654) that, though in some cities anyone who claimed to have a medical degree could settle and practice medicine, yet in Paris and in some other cities those who wished to practice had to undergo an examination to ascertain their abilities no matter from whence they had graduated, "and this rigor is not without benefit for the purpose of remedying the abuse which follows upon many of the little universities and even of the larger ones sometimes giving doctors' degrees too easily for money."

In spite of the fact that Patin never became, in the strict sense of the term, one of the physicians to the court, his letters are very full of reference to medical matters connected with the court, and of the tales of those physicians whom the king delighted to honor.

From the tone of many of these, one cannot but feel that there was considerable personal animus and chagrin at his exclusion from their midst, but it is impossible to imagine Guy in the rôle of a courtier, and in the long run perhaps it was as well for his happiness that he did not achieve court distinction. In order that some of the references in his letters may be rendered less obscure, it is as well to pause for a moment to glance at the organization of the court physicians, that we may realize some of the responsibilities and emoluments incumbent on them.

The medical service at the court of France during the seventeenth century was organ-

ized on the same lavish scale as all the other services of the Maison du Roi. Positions in it were eagerly sought after and were frequently sold for very high prices. Thus Patin writes Spon (May 3, 1650) that Séguin who had seven years before paid Guillemeau 50,000 livres for the succession to his place as *médecin ordinaire du roi*, had in turn sold the succession to de la Chambre for 22,000 écus, and he writes to Falconet (July 5, 1652) of the death of Vautier.

He (Vautier) was *premier médecin du roi* and the last of the kingdom in capacity, and in order that you should know that he is not dead without cause, he took antimony thrice, that he might die in his method, by the consent and advice of Guénault. If he had died seven years ago he would have saved the lives of many honest men who have been killed by his antimony. At length he is dead himself aged fifty-three years. As he was reported to be very ignorant even at Court he wished to have the reputation of possessing chemical secrets and of excelling in the preparation of antimony. Some courtiers applauded him or seemed to do so. The authority of his charge sustained his credit. He said among other things that the physicians of Paris were right to say that antimony was a poison, but that as he prepared it, it was not; nevertheless this good preparation failed him. It is a place vacant for which Cardinal Mazarin expects (*cherche*) three thousand pistoles, there is one of my colleagues who says that they have offered it to Guénault at that price, but that he refused it, but that he believes that Valot will give them. Thus all is for sale, even to the health of the king which is a very bad example.

At the head of the medical service there was the *premier médecin*, the first physician to the king. He was one of the grand officers of the crown, a member of the council of state, and enobled by virtue of his position, bearing a coat of arms. He received a large salary and many perquisites, such as we know Fernel, physician to Henri II received at the birth of each of the children of his royal master. Of course, in consequence of his office, he was sure of a large clientele among the nobility. He had

authority over all the physicians, surgeons, apothecaries, dentists, etc., who aided him in guarding the health of the royal person, judging as to their qualifications for their respective appointments, and assuring himself that they fulfilled their duties properly. He was required to be in attendance each morning when the king arose, and to exercise an active supervision over the king's diet and regimen. If the king was ill the first physician had chief care of the case and direction of its management, presiding at all consultations and carefully observing the results of the medicines or remedies administered to him. It was his duty to accompany the king on any journey he might make, and he had to take up his residence at whatever château or place the court might lodge.

Associated with him were eight physicians in ordinary, or as they were generally termed, physicians by quarter, because of the division of their terms of service in attendance by quarters of the year. Two of them were required to be in attendance at the court for three months in each year. During that time they slept near the king, attended the rising and retirement of the king, and were present at his meals. The constant supervision of the meat and drink of the king was necessary not only in order to see that it was properly prepared, but also to guard against the danger of an attempt to poison the monarch.

There were many instances of the appointment of additional physicians to the king. These received their appointments generally by their successful management of some patient belonging to the royal family, rarely because of any especially distinguished standing in the profession. Undoubtedly many of the court physicians owed their positions to some lucky chance or to the backing of influential friends, while on the other hand, many were appointed because by their merit they had obtained a reputation for skill. Thus Ambroise Paré's appointment as chief surgeon was due to the recognition of his skill by those whom he had treated in the wars.

Patin tells Belin, October 28, 1631, that Senelles, one of the king's physicians had been tried for casting a horoscope of the king and predicting his death. He and another of the king's physicians, Duval, who was concerned with him in the matter, were sentenced to the galleys for life and their property confiscated.

Again writing to him in 1655, he says that Louis XIV is ill at Fontainebleau with a continued fever, he has been bled from the arms and one foot. The fever developed after he had been taken by his physicians to drink the waters at Forges.

God knows for what reason they should make a young prince of seventeen years drink those lye waters when in a state of good health as was the king. It is long since, that princes have been unfortunate in their physicians. I wish with all my heart that God sends him good health, and that they do not give him antimony. Note that in all the court there is not a good physician.

Writing again (March 14, 1657) he reiterates his views:

The great are unfortunate in their physicians. The chief part of the court physicians are ignorant or charlatans, and often both the one and other.

The premier chirurgien or first surgeon to the king, was assisted by eight surgeons in ordinary, or by quarter. His office was subordinate to that of the premier médecin, and his duties not quite so onerous.

The court physician had no easy task. Louis XIV would not let Fagon use the word "order" (*ordonnance*) when prescribing for him, and Louis XV reprimanded his physician when he told him "it was necessary" (*il faut*) that he should do or take something. When Senac was appointed médecin du roi in 1752, he had Fizes appointed to the position of physician to the duc d'Orléans which he had previously held. Senac gave Fizes some advice as to the behavior he should adopt towards his noble patient:

I told him to approach his patient gravely, to feel his pulse, make him put out his tongue, gaze

seriously in the basin (urinal or else bowl in which the blood had been drawn); not to speak, but to shroud himself in his peruke, and remain thus a moment with his eyes closed, then to give his orders, and go away without thinking to make his reverence. Instead of that, my imbecile jabbered like a magpie; he talked politics and literature, saying, "Your serene highness" every minute. He only got what he merited, and that is what should happen to all those who do not listen to their elders. Fizes was discharged within a month after he had been appointed.

Mazarin had had his favorite Valot appointed médecin du roi, when the King was sick with a malarial fever, possibly typhoid. In 1655, Patin writes Spon (October 19, 1655):

The Queen has refused Valot permission to bring physicians to Fontainebleau to consult with him, and treat the king. He had named A. Daquin and Veson to her. She answered in anger: "I doubt the choice which you would make. These are fine physicians for the King! I do not agree with you. I wish to have Guénault who treated him once when he had small-pox." Guénault was sent for and is there. One holds that Valot is in danger of being discharged, although he has not yet touched any money since the three years that he payed to enter there; at least he is in great danger of it if the Cardinal does not maintain him and put him back in the good graces of the King and Queen, with whom he stands very badly.

Molière's epigram on the death of Henrietta Maria, the Queen of England, sister of Louis XIII, under the care of Valot might be recalled:

Le croiriez vous, race future,  
Que la fille du grand Henri  
Eut en mourant même aventure  
Que fut son père et son mari?  
Tous trois sont morts par assassin,  
Ravaillac, Cromwell, médecin;  
Henri, d'un coup de baionette,  
Charles fini sur son billot,  
Et maintenant meure Henriette,  
Par l'ignorance de Valot.

## HOME LIFE

Patin soon achieved sufficient practice to give him a very comfortable position in life. He speaks with pardonable pride of his possessions. Writing to Belin, May 1, 1630, he says, "I have in this city two things of which I can boast, good books and good friends, which are at your service." And again writing to Belin, fils, in January, 1651, he states:

Furthermore I have purchased a fine house, in which I have dwelt now for three days. It is situated in the Place du Chevalier du Guet, *en belle rue*, and away from noise. . . . I have a fine, large, vast study in which I hope to place my 10,000 books by adding to it a little chamber which is on the same floor. My friends say I am the best lodged man in Paris.

He writes to both Spon and Falconet about his removal to his new house but dwells chiefly on the pleasure it gives him to have his books so well lodged. He describes the arrangement of his study in a letter to Falconet (April 24, 1651):

I assure you it is beautiful. I have put on the mantle of the chimney a beautiful picture of a crucifix which a painter that I had had cut (from stone) and gave me in 1627. On either side of the good God are both of us, the master and the mistress; under the crucifix the portraits of Erasmus and J. Scaliger. . . . Besides the ornaments which are on my chimney, there is in the middle of my library a large beam, which passes from one end to the other on which there are on one side and the other a dozen pictures of illustrious men, having thus plenty of light from the opposed windows, so that I am in good company with good illumination.

In a letter to Spon (June 13, 1644) Patin says that five years after receiving his doctors' degree he took a wife "from whom I will have in direct succession 20,000 écus, her father and mother yet living but very old, with one collateral (relative) a sister who has no children and is very rich. God has blessed my alliance with four sons, to wit Robert, Charles, Pierrot and François."

The book-lover Patin complains to Belin, September, 1646, that it has been necessary for him to make three journeys from Paris, one into Beauce, one to Rouen, and another into Normandy.

However-so-much I love the sedentary life and not to go away from Paris, because of my books. If I did not know myself well I would say of myself what an old surgeon of Paris said of himself "that he was persecuted by too much practice because he was too skillful a man." . . . These journeys were as displeasing to me as they were necessary for those for whom I made them, and they moreover were extremely incommoding to me.

Patin also owned a country house of which he wrote Belin, fils, July 5, 1651, "My wife and children are in the country at three leagues from here, in a handsome house, which I bought for fifteen thousand livres."

## LITERARY INTERESTS

Patin's intense interest in the history and literature of his profession is manifest throughout all his life. He begins his correspondence with Belin (in 1630, aged twenty-nine) by telling him that he is trying to make a collection of all the theses read at the medical school in Paris and asks him for copies of those which he could not obtain at Paris and thought Belin might have at Troyes, written by Belin's contemporaries at Paris.

Patin had also the most lively interest in general literature. In 1637 there was published an edition of the Latin addresses pronounced by Jean Passerat, one of the authors of the "Satire Ménippée" and professor of eloquence and Latin poetry in the Collège Royal, with a preface by Guy Patin. In addition to writing to his friends the news about all the latest medical books and editions, he writes of works on law, theology, philosophy, literature and history, rejoicing in new editions of Vossius, Lipsius, Casaubon, Scaliger, Grotius, etc.

In 1668 Patin published the "Apologia pro Galeno," written by Gaspard Hoffman,

who died in 1648. Patin purchased the manuscript after Hoffman's death. He dedicated the book to his friend President Lamoignon.

Patin not only collected and read books but he was an active factor in stimulating the publication of new works and of new editions of those which were difficult to obtain or which in his opinion were suitable for republication in improved form. With this object in view he is constantly importing books from Holland, Germany or Italy, lending rare manuscripts or tomes to publishers, and writing to procure such material from sources where he thought it might be obtained. And his zeal extended to other fields than those of his profession. Thus we find him writing April 1, 1657, to M. de Tournes, a book-seller, offering his aid in publishing various books. Writing to Belin, August 2, 1640, "If ever you come across the Volume of Epistles by Erasmus in folio, the thickness of three big fingers (because there are others that are smaller), purchase it boldly; it is a book worth its weight in gold." Patin contemplated getting out a work on practice of his own, a "Methodus" or manual, and wrote to Spon (July 13, 1649) about the plan he proposed to follow, but which he never carried out.

In writing to Belin, November 4, 1631, Patin speaking of the last edition of Paré's works, says, "The Paré of the last impression, well bound, costs eight livres, without any rebate. It is augmented in this last (edition) by a new treatise on fevers, which has been added at the end of the book, and is written by a physician *intus et in cute mihi noto*, without having put his name to it, which is very good." Triaire believes it very probable, that the anonymous physician, whose "name was very good" and whom Patin knew so well, was none other than Guy himself.

Writing to Spon (June 11, 1649) Patin after stating that Paré had decried the use of unicorn's horn and other "Arabesque remedies, adds, "Do not think of rejecting the opinion of Paré under cover that he

was only a surgeon. The author of his book was a learned physician of Paris, named Master Jean Hautin (Altinus), who died here, one of our ancients, in the year 1615." This repeats an accusation made by Le Paulmier, Riolan and others that the works appearing under the name of Paré were not really written by the Father of French surgery, but by others. Malgaigne<sup>17</sup> in the Introduction to his definitive edition of the writings of Paré has proved convincingly the falsity of such statements, and shown beyond cavil that Paré never put forth a line of which he was not the veritable author. Patin possibly was misled by his admiration for Riolan to share the views which the animosity of the latter towards Paré, caused him to propagate.

#### RELIGIOUS BELIEF

Patin translated into Latin and published with notes the works of André du Laurens (1538-1609), premier physician to Marie de' Medici, and after the death of Marescot, to Henri iv.

Patin was not openly a Huguenot but had strong sympathies with them and he was certainly not a very strict Catholic. He read many Huguenot works on theology. He frequently expresses admiration for Arnauld and other Jansenists. Thus he writes Spon (March 3, 1656): "The Jansenists are badly and iniquitously treated by the Sorbonne which I impute to the injustice of the age and the impiety which prevails, and also to the too great power of the Loyolists who are their powerful enemies." Writing to Belin, October 28, 1631, he says, "In our Christian religion I believe as we all should believe, many things that we do not see . . . but it is by means of the faith which obliges us to; . . . but in medicine I believe only that which I see."

Writing to Belin, fils, apropos of the Dutch and their wars he says, "But the Pope and the Jesuits will never fail to arouse a war against those men, who will not

<sup>17</sup>Oeuvres Complètes d'Ambroise Paré. Paris, 1840.



believe in Purgatory, nor purchase from them indulgences, medals, blessed grains and other spiritual bijoux." He writes several times in 1660 that he is anxiously awaiting a book of Huguenot theses which is being published at Genoa. He also refers several times in the same year to a Latin translation of the Bible made in England with notes by Calvin, Beza, and other Huguenots. Yet he tells Belin, February 7, 1648, that he belongs to the Parish of Saint-Germain-l'Auxerrois and he was interred in that church after his death. He refers sympathetically to the Huguenots who were massacred in Savoy in several places.

He writes a confession of faith to Belin, July 18, 1642:

I put no credence or belief in possessions, nor in sorcerers, nor miracles that I neither see nor discern. I believe all that is contained in the New Testament, as an article of faith, but I will not give like authority to all the legends of the monks, *fabulosis et commentitiis narrationibus Loyolitarum*, who in the romances which they send us from the Indies, say things as impertinent and as untrue as the fables of Æsop. You would say that these men worked only to infatuate the world. It is true that if we were all wise, these master pharisees of Christianity would be in danger of soon dying of hunger, *Credo in Deum Christum crucifixum, etc. de minimis non curat practor*. Deception, horrible thing, altogether unworthy of an honest man, but it is even worse when it is mixed in and employed in religious affairs, *Christus ipse, qui veritas est, non indiget mendacio*. I cannot put up with the stinking falsehoods which the monks retail to the world to authorize their cabal, and it astonishes me greatly, *imo serio irascor*, that they have so much credit.

A friend of Spon who met Patin at Paris thought he was an ecclesiastic. Patin writes to Spon (January 24, 1651):

I pray you to salute M. Sarrazin on my part and tell him that I am much vexed that he should have taken me for a priest, seeing that I am not and never shall be one, and even that I had not wished to be in spite of the efforts of my mother, and that I have often praised God

that he did not make me a woman, a priest, a Turk or a Jew.

Patin was a great admirer of Jansen and of Arnauld. He speaks of their writings in terms of the highest esteem and condemns in unmitigated terms on many occasions the persecution which they suffered at the hands of the ecclesiastical authorities.

Patin was greatly delighted with the "Provincial Letters" (*Lettres Provinciales*) of Pascal. They appeared in 1656 and created a great sensation. Their circulation was prohibited, but Guy writes Spon that he will send them to him and tells him what rage and consternation they have created among the Jesuits. Patin writes repeatedly of the massacres of the Protestants of Vaudois, speaking of them as "the poor Huguenots," and stating several times his joy at hearing that Cromwell had interfered on their behalf and proposed to demand the punishment of those who had instigated and conducted the massacres.

He writes to Spon (January 19, 1656):

The pest is yet very bad at Rome, but it spares the pope and the cardinals. Perhaps it is because it thinks they are more evil than it. Nevertheless thirty-six good and wise physicians are dead, and it is they whom I regret. The pope and the cardinals never lack. There are always enough of them.

Also (November 18, 1659): "If the pest took only monks, generals of orders, and especially the general of the Jesuits, I think Christianity would hardly lose."

Patin's narrative of the so-called "Miracles of Port Royal" is very amusing. A niece of Pascal's suffered from a lachrymal fistula and according to the Port Royalists, was cured by the application of a thorn which had been one of those in the Crown of Thorns. The miraculous cure was certified by four physicians, Bouvard, Hamon, and the two sons of Patin's old enemy Renaudot. Patin laughs at the whole affair in a letter to Spon (November 7, 1656) saying it was put forth as counterblast to the many miracles claimed by the Jesuits. He adds:

Some have asked me my opinion. I answered it was perhaps a miracle that God had permitted to Port Royal to console those poor people that one calls Jansenists, who for three years have been persecuted by the pope, the Jesuits, the Sorbonne, and the greater part of the deputies of the clergy, also to lower the pride of the Jesuits, who are very insolent and impudent, because of some credit which they have at Court.

Writing to de Salins, a physician at Beaune, March 27, 1655, he tells him to make a little hidden library containing among other lesser known books, those of Rabelais, Marot, Montaigne, and Erasmus.

Your book of Marot<sup>18</sup> is not bad. Guard it well and hide it for fear the monks steal it from you and burn it. Put with it M. François Rabelais' the Catholicon of Spain (one of the most popular satires against the League). The Republic of Bodin, the Politiques of Lipsius, the Essays of Montaigne, the Sagesse of Charron, the Doctrine Curieuse of Père Grasse, the Recherche des Recherches, these are books which are capable of taking the world by the nose. I would except from them the two last which are good for other reasons. Do not neglect them and make of them a little library which will be a *reductis et extra insidias monachorum*.

For the writings of Erasmus, keep them, *propter auctoris dignitatem*.

O the excellent man that he was! Drink a little of the good wine of Beaune to his memory, *cum novella uxore*, and I will give you reason on the first occasion. Read his Colloquies once a year and place them in the library above mentioned, *cum ejusdem auctoris lingua et encomio moriae atque institutione principis christianat*.

Patin professes a great admiration for the "Religio Medici" of Sir Thomas Browne. In a letter to Spon, October 21, 1644, he writes:

There has arrived here from Holland a little book, entirely new, entitled Religio Medici,

<sup>18</sup> Clement-Marot wrote a metrical version of the Psalms in French about the middle of the sixteenth century. It was very popular with the Huguenots and equally hated by the Catholics.

written by an Englishman and translated into Latin by a Dutchman. The book is very pleasant and curious, but very delicate and mystical. You will receive it in the first package or by the first way that I may find. . . . The author does not lack spirit, you will see in it strange and ravishing thoughts. There is yet scarcely a book of this sort. If it be permitted to the wise to write thus freely one would learn much of novelty, there was never a Gazette worth it. The subtlety of the human mind, can show itself in this way.

Again in a letter to Spon on April 16, 1645, he writes:

They make a great deal of the book entitled Religio Medici. Its author has esprit. There are a good many things in the book. He is an agreeable melancholic in his thoughts, but he, in my judgment searches a master in religion like many others, and perhaps in the end he will not find one.

It is rather surprising to find Patin writing to Spon (July 26, 1650) in terms implying admiration of the eccentric spagyrite and Rosicrucian, Sir Kenelm Digby (1603-1665), the inventor of the famous "sympathetic powder," because if ever there was a believer in occultism, it was that doughty English Knight. Be that as it may, Patin writes:

M. le chevalier K. Digby, an English gentleman, a very zealous catholic, learned and curious, has written while journeying, as he has done much for twenty years, chiefly in Italy, a Treatise on the Immortality of the Soul, in English printed today at Paris. It is this same Knight who has written also in English against the author of the book entitled Religio Medici. I ardently wish that that which he wrote of it was also put in Latin, seeing that I have a high opinion of these two minds (ésprits).

Of another Englishman Patin writes to Belin, fils (October 28, 1659): "Bacon was a chancellor of England who died in the year 1626, who was a great personage, of an elevated and curious mind. All that which he has done (written) is good."

When Thomas Hobbes, the English philosopher who wrote "Leviathan," was ill in Paris, in 1651, Patin attended him. He

writes Falconet (September 22, 1651), that Hobbes suffered from an attack of vomiting, with a greatly distended abdomen, and much pain. Patin, of course, proposed to bleed him but Hobbes refused to allow him to do so, objecting on account of his age, which was sixty-four years.

The next day, having insinuated myself a little more into his good grace, he permitted me to bleed him, which gave him a great relief. He alleged to excuse himself that he did not think one could take so much bad blood from him at his age. After that we were comrades and great friends. I allowed him to drink all the small beer that he wished. At last after a little purgation he was in good condition. He thanked me very much, and said that he would send me something good from England. May he soon return there gay and joyous, without any further hope of recompense.

Patin hated bitterly the Jesuits and all other ecclesiastics who mingled in affairs of state. To the Jesuits he frequently referred as "that Spanish and loyalitic vermine" or "the black troop of disciples of Père Ignace," and the "carabins de Père Ignace." "The world had been in perpetual trouble since the monks put their nose in its affairs. The philosophic liberty of physicians prevents them from loving much this sort of men."<sup>19</sup>

In several places he terms the Jesuits "the executioners of Christianity." Writing to Spon (November 16, 1643): "These executioners follow *à la fin* every occupation imaginable, provided there is something to be gained by it."

Patin<sup>20</sup> writing of a book by Isaac de la Peyrère in which the author argued for the existence of a race of men on earth before Adam, the pre-Adamites, says there are others who claim that the inhabitants of Australia and America are not descendants of Adam but belong to a totally different creation. "There are curious men, gazetteers of another world, very like our preachers, who often let themselves go,

telling us marvels of a country where they have never been and to which they will never go."

#### FRIENDSHIP WITH NAUDÉ

One truly human friendship Patin had, with a most congenial soul, namely, Gabriel Naudé, the famous librarian of Cardinal Mazarin. Naudé was born at Paris in February, 1600. He and Patin were fellow medical students in 1622. He received the degree of Doctor of Medicine from the University of Padua in 1628, but does not seem to have ever practiced medicine, devoting himself entirely to books, first as librarian to President de Mesmes, then as librarian and secretary to Cardinal de Bagny, at whose death he served Cardinal Barberini in the same capacity at Rome, and afterwards Richelieu. In 1643 he assumed charge of the wonderful collection which Mazarin was gathering together, amounting at the latter's death to 45,000 volumes, and owing their great value largely to the judgment and erudition of Naudé. In 1623 Naudé had published the book by which he is probably best known today, "Apologie pour les grands hommes soupçonnez de magie," which was translated into English by J. Davies in 1657, under the title, "The History of Magic, by way of apology for all the wise men who have been unjustly reputed Magicians, from the Creation to the present Age." In 1627, while still librarian for President de Mesmes he published his "Avis pour dresser une bibliothèque," which went through a number of editions and was translated into English by John Evelyn, and published in 1661, with the title "Instructions concerning erecting of a Library."

Many amusing stories were told of Naudé by his contemporaries. He bought books in quantity by weight and measure, instead of by title or volume. Walking into a bookshop he would scan a pile of books, not paying any attention to the individual volumes, and then offer the dealer so much per pound or foot for the lot. Taking them

<sup>19</sup> Letter to Belin, May 20, 1632.

<sup>20</sup> Letter to Spon, September 14, 1643.

home he would sort them out, placing some in the Cardinal's library, buying some for his own which was very large, and then selling the duplicates. He was in the seventh heaven of happiness in his position with Mazarin. Although the great Cardinal was avaricious to the last degree, he would spend his ill-gotten gains like water for additions to his library. He sent Naudé all over France, and to Italy, Germany, and England in quest of them. He is first mentioned by Patin in a letter to Belin, dated May 14, 1630, stating that he is sending him a small book which is the "Paranympth" for the year 1628, "written by a very learned young man named M. Naudé." Its subject was after Patin's heart: *De antiquitate et dignitate scbolae medicae Parisiensis panegyris; cum orationibus, encomiasticis ad IX iatrogenistas laurea medica donandos.*

Naudé figures frequently in Patin's correspondence. On August 27, 1648, he writes to Falconet a most amusing little skit about a projected trip which he, Gassendi and Naudé have planned for the following Sunday. The three are to go out to supper and to spend the night at Naudé's house at Gentilly and there.

Make a debauch, but God knows what debauch. M. Naudé drinks nothing but water, and has never liked wine. M. Gassendi is so delicate that he would not dare to drink it, and imagines that his body would burn up if he had drunk of it . . . for me, I can but throw sand on the writing of these two grand men; I drink very little, and nevertheless it will be a debauch, but philosophic and perhaps something more, for to be all three cured of night wolves (loupgarou) and delivered from the evil of scruples, which is the tyranny of consciences, we will go perhaps until very near the sanctuary. The past year I made this journey to Gentilly, alone with him tête-a-tête, there were no witnesses, also none were missed; we talked freely of everything, without anyone being scandalized by it.

On November 16, 1652, Patin writes to Belin, fils, that Naudé has gone to Sweden, where he had accepted the position of

librarian to the eccentric Queen Christina, but his stay there was short, as in May, 1653, Patin writes that all the French whom the Queen had gathered about her, had been discharged from her service except Naudé, whom she wished to remain, which he refused to do, preferring to leave with his fellow-countrymen. Naudé lived a short time afterwards, his death occurring at Abbeville in July, 1653, as he was returning to France at the bidding of Cardinal Mazarin who had returned to power.

The only criticism Patin writes of Naudé is contained in a letter to Spon (March 22, 1648) in which he says that Naudé had been to see him and had complained of the avarice of Mazarin in that he had paid him very little for the services he had rendered him.

I think it is the fear of dying before having amassed wealth to leave to his brothers and nephews of whom there are a great many. And by this example I see easily that the passions enter just as much as ever in the minds of philosophers. I am however very sorry for it seeing that he is an honest man and worthy of better treatment by such a master (as the Cardinal).

Naudé was a freethinker. In an undated letter to Falconet, written in 1662 or 1663, Patin expatiates at length on the opinions and character of his deceased friend. He thinks he had been inspired with indifference about religion during his residence of twelve years at Rome, also that his unbelief had been fostered by one of his teachers, a professor of rhetoric at the college of Navarre. Of his personal character he speaks most highly. He was prudent, wise, well regulated, with "a certain natural equity" and a good friend, "no swearer, mocker nor drunkard. He drank only water, and I never heard him knowingly tell a falsehood. He hated hypocrites, those who had once deceived him, and liars." In one of his books he asserted that Jeanne d' Arc had not been burned but that an effigy of wood had been consumed instead. Patin refers to a number of authors who have

written that she really did suffer at the stake, and adds—

For myself I am very strongly for this girl who had been an excellent heroine. I believe that all the miracle was politics and beautiful finesse painted with the sacred and holy name of religion; which leads the world by the nose . . . I have, moreover heard it said that she was not burned but returned into her country, where she married and had children.

Of course such detractions arise concerning almost all the great figures of history, but the authenticity of Jeanne d'Arc's story has been established beyond question. Not to speak of her recent canonization by the Roman Catholic Church, the records of whose heroes and heroines do not always bear too close scrutiny, the investigations of historians have unearthed legal evidence and contemporary statements which amply confirm the historic narration of her murder in the market place at Rouen. As to the miraculous fictions about her mission they merely detract from the novel simplicity of her story.

Naudé was not a very gallant man. He said "I could never bring myself to get married. The way is too thorny and difficult for a studious man."<sup>21</sup>

During the troubles of the Fronde, after the Court had left Paris the Parlement of Paris, after proscribing Mazarin, ordered

that his library should be sold. Patin writes Falconet (January 30, and March 5, 1652) about the sale:

All Paris goes there as to a procession. I have so little leisure that I cannot go, joined to which the librarian, who had charge of it, is M. Naudé my friend of thirty-five years, who is so dear to me that I cannot bear to see this dissolution and destruction. . . . Sixteen thousand volumes have already gone, there remain but twenty-four thousand. . . . M. Naudé, who is very angry against the Parlement, has bought all the books on medicine for 3,500 livres.

The King finally intervened and stopped the sale by a letter to Fouquet, the procurer-general, in which he also ordered that the money obtained be refunded and the books restored, as much as possible. In his will Naudé bequeathed the books that he had bought from Mazarin's library, back to the Cardinal, and the latter bought the rest of the books in Naudé's collection, so that they all became part of the great Mazarin Library in which they still remain. Queen Christina and many others who had purchased books at the sale, followed Naudé's laudable example so that when, in 1660, the Cardinal died leaving an immense sum of money and his library to form the Collège de Quatre Nations, the greater part of the books that Naudé had collected for him were again brought together.

(To be continued.)

<sup>21</sup> Naudeana et Patiniana.

# LOUIS DANIEL BEAUPERTHUY

By CASEY A. WOOD, M.D.

CHICAGO, ILL.

THE suspicion—one may not call it a theory—that the mosquito and other insects are vectors of disease arose in the minds of investigators more than a thousand years ago, and the idea itself has been entertained and expressed on various occasions since then by observers in almost every part of the world. Let us consider two instances only.

Alleyne Leechman<sup>1</sup> quoting from the log of a British gunboat visiting the Orinoco and other South American waters during an early decade of the nineteenth century relates that the ship's surgeon endeavored by nets to protect the crew from the bites of mosquitoes because he believed them to be carriers of disease; the captain, however, objected to "coddling" his men and refused to follow this good advice, the consequence being that the doctor was the only one on board not sooner or later laid up with fever.

Early African explorers noted that it was a well-established belief among the natives that when and where mosquitoes were plentiful fevers were sure to follow. An old and popular work on medicine circulating in the colony of British Guiana states, under the head of "Precautions against Ague" that it is said by "surrounding the head with a gauze veil the action of the malaria is prevented and by its use it is possible to sleep even in the most pernicious parts of Italy without fever."

Again, we find that Nott,<sup>2</sup> of Mobile, Alabama, in 1848 upheld the theory of the mosquito origin of yellow fever.

But this is not the place to list the various discoverers that have told the well-known and remarkable story of insect-borne infections; the object of the present sketch is rather to relate what is definitely known

about the career of the versatile man whose name heads this page.

I spent the winter of 1920-21 in British Guiana at work within sight of Beauperthuy's grave, and this proximity induced me to verify some published statements and to correct others relating to that father of medicine.

Beauperthuy<sup>3</sup> was born in Basse Terre, Guadeloupe, in the year 1803, but the exact date I have been unable to trace.

Aristides Agramonte<sup>4</sup> gives August 25, 1808, while the tablet at the head of Beauperthuy's grave indicates his birth in 1802. He seems to have been early influenced by a desire to investigate the natural sciences and was, perhaps on that account, attracted by the study of medicine which, following the example of the educated French colonist, led him to Paris in 1837, where he graduated with honors, as M.D. The title of his graduation thesis was "De la Climatologie."

During his student days he paid much attention to the use of the microscope and busied himself chiefly with the causes and exact nature of contagious and epidemic diseases. After graduation he was appointed Traveling Naturalist to the Paris Museum of Natural History, and returned to Guadeloupe to pursue the practice of his profession and to make a study on the spot of those mysterious outbreaks of tropical diseases in which he was so deeply interested. This explains his presence later on in Venezuela where epidemics of yellow fever were not uncommon. The government of the day, in recognition of his services, appointed him health officer of the district of Cumaná, where, in 1853, he wrote for the *Gaceta Oficial di Cumaná* his first paper on insects as carriers of endemic and epidemic diseases.

<sup>3</sup> Pronounced in British Guiana as if it were spelled B6-per-tee, with the accent on the first syllable.

<sup>4</sup> *Boston M. & S. J.*, 1908, p. 927.

<sup>1</sup> *Daily Argosy*, Demerara, May 6, 1909.

<sup>2</sup> Boyce, Rupert: *Mosquito or Man*, 1910, p. 23.

as opposed to the ancient theories of contagion and miasma. Beauperthuy had a degree conferred upon him by a Venezuelan university, and in one of his communications describes himself as "Docteur en médecine des Facultés de Paris et de Caracas, naturaliste française et micrographe."

He was married when he settled in Venezuela, and was probably a citizen of that republic. The newspapers at the time of his death in British Guiana speak of his having left his family in the former country while he was away from home on duty.

Before leaving Venezuela he contributed to the *Gaceta* and to the *Académie des Sciences de Paris* an essay on the disease-carrying characters of certain flies and mosquitoes. In this connection, in a personal letter to Professor Harrison, of Georgetown, dated January 24, 1910, Dr. Blanchard, editor of the *Archives de Parasitologie*, writes that he found in the Museum of Natural History many documents concerning Beauperthuy and his activities as naturalist-traveller in Venezuela during the years 1839-1841, including several letters written by him during that period.

Sir Rupert Boyce<sup>5</sup> has given us excerpts (in French) from a posthumous volume of Beauperthuy's writings published by his brother, Pierre Daniel Beauperthuy, at Bordeaux in 1891. As these extracts<sup>6</sup> have not, so far as I know, been fully translated into English, I take this opportunity of freely presenting them as an authoritative statement of the writer's doctrines touching such epidemiologic subjects as came under his observation. They also throw a clearer light upon the man and his works than any description could furnish.

Beauperthuy writes:

Members of the medical profession, long believed that the itch and the plague are propagated by miasmatic infection or by direct

<sup>5</sup>Mosquito or Man, 1910, p. 101.

<sup>6</sup>Taken chiefly from the *Gaceta Oficial di Cumaná*, No. 57, 1854. See also, *Science*, July 24, 1908. The title of the original work is *Travaux Scientifiques*. A. Berlier et Cie.

contact with the clothing or other objects more or less recently touched by the infected. Such were the ingenious notions held by men during the dark ages of medicine to explain phenomena whose real character escaped their observation. However, many similar ideas prevail at the present time. One of the (few) advances in etiology has been to substitute as the cause of scabies an insect—an acarus—for some purely hypothetical etiology. Linnaeus, Avenzoar and other physicians had declared an insect to be the cause of the itch. The medical cult, wedded to opinions consecrated by hoary tradition, had preserved many ancient errors; and so it required three centuries to establish (a fact so easy to verify!) the true cause of the itch; and scabies was finally removed from the list of vesicular eruptions to mark the first of a series of parasitic diseases. Indeed this tardy recognition of the true nature of scabies may serve to illustrate a truth of deeper significance, one of which even the negroes of our colonies, the aborigines of South America, practically all the common people, have long been aware. Only those who, it would seem, profess a wider knowledge than Nature herself ignore this well-known fact.

Beauperthuy then proceeds to state his case:

The absence of mosquitoes during cold weather explains the disappearance of malaria. The immense marshes of northern Europe are, for the same reason, not unhealthy. Marshy regions merely furnish a certain degree of humidity to the surrounding atmosphere, and the small quantity of carbureted hydrogen they exhale does not affect adversely residents in tropical countries. At any rate it is not the decomposition of the water that makes it dangerous to health and life but the presence of mosquitoes. During the dry season, which is unfavorable to insect life, fevers of all sorts diminish or disappear, not only in Senegal and on the plains of Europe but at Caracas and in the Guianas. Conversely, they revive during the rainy seasons, when mosquitoes are numerous and the diseases they produce are then most malignant. During these periods fevers are plentiful and noxious insects swarm in the stagnant waters. Avenzoar pointed out, three centuries ago, the insect that produces itch and indicated its origin. Linnaeus confirmed these findings and

presented the *Acarus scabei* to the medical world; but the discovery of the itch insect was found to disturb ruling theories. Why, then, admit this isolated fact, that threatened to upset the whole fabric of medicine—that marvellous structure so satisfying to all, or nearly all, the demands of science? Why jeopardize the solidity of an intellectual edifice by the introduction of a degrading innovation—so menacing to an art and to dogmas first taught by a master and afterwards sustained by innumerable disciples? . . . According to tradition, paludal emanations are more deadly at night than during the remainder of the twenty-four hours. One may add in explanation that it is also at night that the death-dealing mosquito is most active. The inhabitants of marshy regions, say believers in the ancient theory, suffer less from intermittent fevers than do newcomers; but why should miasmatic emanations affect less frequently or energetically organs habitually subject to their influence than those exposed less often? . . . House flies and other small Diptera that feed on ulcers, excrement and putrid matter generally, are themselves subject to parasites; a fact of considerable interest. Common flies, that annoy one by clinging so tenaciously to the lips and nasal orifices, are themselves infested with parasites, as proved by their thin appearance and ill-nourished condition, and they try to relieve themselves by depositing their germs on the skin and mucous membrane of other animals. If one of these infected insects be pressed firmly between two glass slides and be laid aside for three or four days in this (tropical) climate the microscope will plainly reveal adult parasites (*des acarus*) that have escaped from the abdominal cavities and attached themselves to the body of the fly. This experiment, which is easily made, requires very little practice with the microscope. These parasites (*acarions*) may reach the human integuments by ordinary locomotion, but this is not the usual method; as a rule they are carried by the common house fly to which they attach themselves. The latter, laden with decomposing matter upon which their parasites feed, unload on the skin or mucous membrane of human beings or on objects that surround them their disease-producing germs or acari. These deposits on the lips and nasal orifices produce a marked irritation of the parts and give rise to small

vesicles such as one sees in herpes febrilis. . . . Intermittent, remittent and pernicious fevers, as well as yellow fever, cholera morbus and the toxemias from serpents and other poisonous animals owe their toxicity to an animal or



TABLET MARKING THE GRAVE OF LOUIS DANIEL BEAUPERTHUY IN THE OFFICERS' CEMETERY, H. M. S. PENAL SETTLEMENT, MAZARUNI RIVER, BRITISH GUIANA

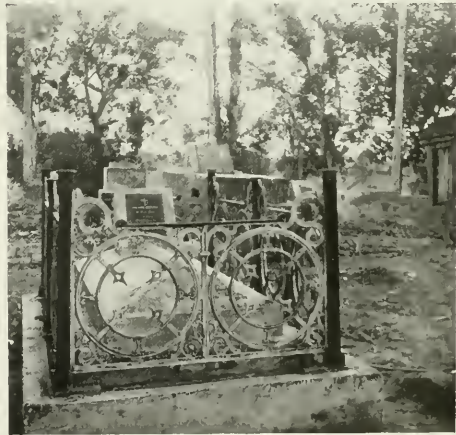
vegeto-animal virus, the introduction of which into the human system occurs by inoculation. The poisonous agent, after an incubation period, sets up at first chiefly nervous symptoms; later there is a true decomposition of the blood and other fluids of the body, affecting the circulation, the respiration, the digestion and all the other functions. . . . Intermittent fever is a serious disease spread by and due to the prevalence of mosquitoes; and these fevers disappear or decrease in severity in forest regions that, because of their altitude, discourage the development of insect pests, quite apart from the amount of decaying matter in the neighborhood. . . . Indians living in marshy districts, as a preventive of fever and ague, build smoky fires at night in front of their huts. This is an efficacious means of driving away mosquitoes—a device they do not resort to in other (insect-free) localities. A still more successful method for this purpose and one that all natives understand and practice is anointing the body with certain greasy substances. It is true that the oily matter does not prevent penetration of the mosquito sting but it neutralizes the poisonous



quality of the secretion and renders it innocuous. . . . The expression "winged serpents" employed by Herodotus may well be applied to mosquitoes in view of the dire effects of their bites on the human economy. Thus it may be seen how a truth was expressed by the ancient writer in the form of fable. . . . Yellow fever had (upon a certain occasion in Venezuela) reached an unusual degree of malignancy, spreading equally among Europeans and Indians. Señor Manuel Artiz, almost a centenarian, was attacked. I tried to encourage him by the assurance that he would live to be a hundred, and fortunately this prophecy was justified by the result. . . . To the mission of my adoption I have brought the fruits of fourteen years of microscopical study of the blood and of other fluids taken from patients affected by all the different types of fever. Investigations made in many tropical and subtropical countries have been of great assistance in determining the cause of yellow fever and the means of combating that terrible malady. As to the etiology of yellow fever in particular I refrain for the moment from making it public, as my researches in that direction form part of a greater work that will detail facts so novel and so much at variance with current teaching that I dare not give them publicity without the fullest and most convincing evidence. In this connection I am sending the Paris Academy of Sciences a sealed letter<sup>7</sup> that furnishes a résumé of the observations I have made to date, thus assuring me priority of discovering the causes of epidemic fevers in general. My method of treating these diseases I have not hesitated to make public and I believe it to be equally efficacious for Europeans and natives. The plan of treatment is easy to master, and every intelligent doctor who will follow my directions may readily obtain as good results as I myself. . . . One must not regard yellow fever as a "contagious" disease. Outbreaks of this malady depend upon certain favoring conditions, elevation, temperature, humidity, vicinity of pools of water, canals and low-lying

<sup>7</sup> The (translated) title is said by a writer in the *Daily Argosy*, May 6, 1909, to have been: Researches into the Causes of Asiatic Cholera, of Yellow Fever and of Marsh Fever, and to have been dated January 18, 1856. So far as I can learn, this essay, which would certainly be a most interesting and perhaps illuminating medico-historical document, has never been published.

lands near the seashore; and these are just the conditions that also favor the generation of mosquitoes. . . . The mosquito inserts through the skin his suction apparatus (an instrument in the shape of a sharp hollow needle armed with two lateral saws) and injects into the wound a lethal fluid which may well be likened to the venom of a poisonous snake. This liquid poison softens the blood globules, brings about rupture of their coverings, dissolves their solid constituents and facilitates the mixture of the coloring matter with the blood serum. Such action appears to be almost instantaneous because, under the microscope, I have observed that the blood extracted through the proboscis of the mosquito is devoid of corpuscles, this state of fluidity facilitating its withdrawal by means of the sucking apparatus of the insect. If after injecting the poison the usual suction is prevented or interrupted the poison remains in the wound and sets up a more pronounced septic inflammation than when some of it has been allowed to be redrawn with the extracted blood. The local irritation was formerly explained by the breaking of the mosquito's sting in the wound, but the insect proboscis is an elastic, horny needle which



THE GRAVE OF LOUIS DANIEL BEAUPERTHUY IN THE OFFICERS' CEMETERY, H. M. S. PENAL SETTLEMENT, MAZARUNI RIVER, BRITISH GUIANA

after numerous observations I have never seen ruptured *in situ*. . . . The carriers of infection are of numerous species, and are by no means equally dangerous. The variety called *zancudo bobo*, whose legs are striped with white,

is the most common of the domestic mosquitoes; its bite is inoffensive as compared with that of some other insects. The *puyon* is the largest and the most vindictive. Its proboscis is bifurcated at the extremity and its bite in favorable cases, when the poison is not absorbed, merely makes a topical deposit resulting in a papule-like, purulent scabies, but which is not contagious. Children are its chief victims. The extent of the suppuration makes it difficult to decide whether or not the remains of an insect are to be found in the eruption. . . . Upon what do mosquitoes feed if not upon decaying animal substances like, for instance, (poisonous) fish carrion?

Why regard it as strange or unlikely that the injection of similar putrid matter into the body should be productive of grave disorders? Magendie has shown that a few drops of fluid material from decomposed fish injected into the blood-

stream of animals produces, after a short interval, symptoms analogous to those of typhus and yellow fever. Is it not practically an injection of rotten fish poison that these insects make beneath the skin and into the cellular tissue of man? The animalcule peculiar to yellow fever thus introduced spread in all directions, swimming in the blood-current. They have a rotary movement, first from right to left, then from left to right. A small dose of sulphate of quinine instantly inhibits these movements and the organisms are then carried along in the current without showing the least sign of self-propulsion.

As will be seen from the foregoing excerpts, Beuperthuy undoubtedly considered the mosquito to be the carrier of the infection that is immediately responsible for malaria, yellow fever and other diseases. He is very emphatic in stating his case and

in denying the verity of the older theories, although it remained for others to establish the exact character and origin of the virus. He again and again insists that in the causation of malarial and other fevers insects are the intermediate hosts of the *materies morbi* (the specific cause of the disease) and that they alone inoculate their victims with the poisons in question. Nevertheless he fell into the error of asserting that the morbid agent is some extraneous substance—some decomposing organic material like the ptomaines of putrid fish—and not, as

we now know, live organisms transferred by the insect from man to man. However, in spite of these defects in his theories of the relations of insect life to epidemic diseases, one may, with Boyce, recognize in Beau-



HUT ON KAOW ISLAND, MAZARUNI RIVER, BRITISH GUIANA. ONE OF FIFTY IN THE PAVILION HOSPITAL PLAN ADOPTED BY BEAUPERTHUY FOR HIS TREATMENT OF LEPROSY. (KIRKE)

perthuy “a medical man with a strong biological trend” and confer on him the title of “father of the doctrine of insect-borne disease.”

Beuperthuy’s fame as an original investigator and authority on epidemic and endemic diseases spread in the course of years all over the West Indies and South America and he became known even more widely for his studies of leprosy (which he thought might also be propagated by insects) and for his claim that when the disease is treated in the early stages it is generally curable. His so-called “cure” of the disease became known, was practiced not only on this Continent but in Europe and India; and his personal services were in wide demand both in the West Indies and South America. He had under his care many

patients, rich and poor, suffering from the dread disease.

In 1870, during one of his journeys from Venezuela to the nearby island of Trinidad, Beauperthuy was invited to remain in that colony and test his recently discovered treatment. On giving consent he requested that the medical profession of Trinidad be represented and associated with him in the investigation. Accordingly, Dr. Bakewell, for the English element, and Dr. G. P. M. de Brissac, for the French, were chosen. Both these gentlemen were much impressed by Beauperthuy's theories and practice but it is doubtful whether they really understood them.

It was about this time also that negotiations for his services in British Guiana were begun. The latter colony had always been liberal in its efforts to mitigate the horrors of leprosy within its own borders, and then as now maintained at Mahaica, about thirty miles from Georgetown, a large hospital filled with patients. It was proposed that Dr. Beauperthuy be given an opportunity to administer his remedies there.

The story of these negotiations, of the investigator's year in British Guiana and of his death in the midst of his ministrations I have been able to follow by means of official and other documents kindly placed at my disposal by the Hon. Cecil Clementi, Colonial Secretary; the Hon. Prof. (now Sir) J. B. Harrison, director of the department of science, etc.; Acting Surgeon-General Ozzard; Capt. Harold Frere, superintendent of H. M. S. Penal Settlement; Mr. Justice Dalton, U. S. Consul; C. W. Davis and Mr. L. D. Clear, Jr., of the department of science and agriculture.

The proposal to bring Dr. Beauperthuy to the Colony came officially before the British Guiana authorities at a meeting of the Court of Policy (upper branch of the legislature) early in 1870. According to the *Colonist* of August 25, 1870, the Governor informed the Court that negotiations had so far progressed that a bill on the

subject of a special leper hospital on Kaow Island was in course of preparation; also that Dr. Beauperthuy had just arrived in the Colony and was about to visit the proposed site of the hospital in company with the Surgeon-General, Dr. Manget. Dr. Beauperthuy would not remain long in the Colony, but he desired to stay during the trial of his remedies and to bring with him certain (private) patients then under



A RECENT (1921) VIEW OF KAOW ISLAND, MAZARUNI RIVER, BRITISH GUIANA, SHOWING TRACES OF THE 50-COTTAGE HOSPITAL ERECTED BY THE COLONIAL GOVERNMENT FOR THE TREATMENT OF LEPROSY BY THE BEAUPERTHUY METHOD

his care that he might superintend their treatment and complete their cure. He showed photographs of his patients before and after treating them. He did not profess to cure nor did he wish to treat cases of advanced leprosy—only those in their incipency. The patients Dr. Beauperthuy was to bring with him would not be a charge on the Colony; they were sons of well-to-do people (who had unfortunately acquired the disease) and who would pay their own way.

At a meeting of the Court on September 27, 1870, the Governor further reported that through the Surgeon-General he had made arrangements for the treatment of about fifty lepers, selected cases from the asylum at Mahaica, which Dr. Beauperthuy had visited and carefully examined. He found

the asylum too crowded for the carrying out of his method; and furthermore believed that only about twenty-five per cent of the inmates were in the curable class; for the remainder he could do nothing. It was finally arranged that his fee was to be six hundred dollars a month, that separate shelters should be built on Kaow Island for public patients and a specially constructed cottage for each of his eight or ten private cases, the latter paying rent therefore to the Government. The surgeon of the Penal Settlement was to be associated with Dr. Beauperthuy who would instruct him fully how to apply his treatment, which was in no sense a secret remedy. No charge would be made for such instruction.

On September 23, 1870, an ordinance (No. 18) containing these provisions was read the first time; on October 12, 1870, the Leper Asylum Bill was read a third time and passed. On December 17, 1870, by notice in the *Official Gazette*, Governor Scott made proclamation setting aside the beautiful Kaow Island, at the junction of the Mazaruni and Essequibo rivers as a leper hospital and appropriating such sums as would properly equip and maintain it for the treatment of as many patients as it was deemed proper to place therein. A later number of the *Official Gazette* contains, among other estimates, "for three 'kokers' (sluice gates) \$450, to drain the island; for fifty huts, \$500, and for other buildings, \$2,500."

From items in the *Creole*, *Colonist* and other local newspapers one learns that Beauperthuy was not idle while the legislature was arranging accommodations for his leper patients up the Mazaruni, but was treating them at Mahaica and elsewhere. Eventually his nephew, Jules Beauperthuy, and the latter's wife joined him. They were living at Bartica Grove, a small village opposite Kaow Island on the mainland, the nephew acting as assistant, although it does not appear that he was a medical graduate.

One realizes how consistent Beauperthuy

was in his claim that hygienic surroundings are essential to a cure of leprosy, when one learns something of the ideal conditions presented by the locality he finally chose for his sanitarium in British Guiana. The Kaow Island hospital was built on the small cottage plan, and practical isolation was secured by the rule, one patient, one hut. Chiefly, however, it must be remembered that a strictly "outdoor" life could be practiced continually by sufferers living in a country and climate where the temperature "in the shade" never falls, the year round, day or night, below 70° Fahrenheit, and rarely rises, even at midday, higher than 85° and that this heat is constantly tempered by ocean breezes. Moreover, the island lies fifty miles from the coast, and was free of mosquito and other (human) insect pests; so that good drainage combined with shelter from the frequent tropical rains and direct sunlight was about all that was required for his purposes in this land of everlasting summer. Clothing was of minor importance and food of the proper quantity and quality was always at hand.

This pavilion or cottage hospital consisted of some sixty buildings, the majority of the simplest construction, a few others—including a church—of larger size. Captain Frere, who kindly photographed the island for me, found the original drainage system still effective and, after a lapse of fifty years, in fairly good condition. As for the huts, however—*periculi etiam ruinae*—only the site, partly covered by jungle "second-growth," can now be identified. However, Henry Kirke<sup>8</sup> gives a picture, here reproduced, of one of the huts, that appears to have survived, for a quarter of a century, the destruction of most of the other buildings.

After Beauperthuy had been treating leprosy patients in British Guiana for about six months a circular despatch (see the *Demerara Creole*, Feb. 10, 1870) was received from the British Secretary of State notifying the Colonial authorities that the

<sup>8</sup>Twenty years in British Guiana, 1868, p. 27.

attention of the home government had been directed by a report of Dr. Bakewell of Trinidad to the Beauperthuy treatment of leprosy and it was proposed to send out from England Dr. Gavin Milroy to observe the effects of that treatment. He would visit various colonies in which the method was on trial. Would the government of British Guiana pay a share (six-sevenths) of the total expense (about ten pounds sterling a day, or one hundred and fifty-six pounds in all) for six months' observation by this expert? Although Dr. Beauperthuy was at the time treating lepers at the expense of the colony, it agreed to the proposition and voted the amount. Milroy set out on his mission and was investigating the Kaow Island hospital on the day of Beauperthuy's death.

It is not the purpose of this paper to discuss the value of the Beauperthuy remedies in lepra, but it may be said that, in the official report just mentioned, Bakewell remarks that the plan combined attention to general hygiene with the application of local resolvents. Briefly, his system included residence in as salubrious a locality as can be procured, the diet (nutritious but not too stimulating) to consist of a daily portion of fresh meat, but no pork nor salt fish; red wine in moderation if the patient has been accustomed to it; in addition, attention to all other rules of health. Internally, Beauperthuy prescribed mercuric bichloride in small doses. Certain liniments, of which one contained balsam of copaiba, were used to relieve and cure the eczematous and other eruptions so common in leprous diseases. For the active destruction of the tubercles he employed either a strong solution of silver and copper nitrate (made by dissolving a silver coin in strong nitric acid and adding an equal bulk of distilled water) or, by preference, the oil of the cashew nut (*Cunacardium occidentale*). The oil was rubbed on with a sponge, and in some cases a needle was used to puncture the tubercle in order to set up suppuration. Beauperthuy always advised the employ-

ment of this method only when the disease was "localized" and had not attacked the internal organs.

Subsequent observers, while reporting amelioration of the symptoms in some cases, reported against it as a whole. In 1874, Dr. A. G. Cameron, special commissioner for visiting leper asylums, and other surgeons who inspected Kaow Island and studied the patients there, were unable to report any cases of permanent cure. In its day, however, the Beauperthuy method was practiced in many widely separated countries of the globe—in India, (Bombay, Madras), in Norway, etc., but it was finally abandoned as unsuccessful in all these centers. The hospital on Kaow Island was abandoned in the course of time although well into the eighties a few survivors were still located there.

Beauperthuy died quite suddenly and without warning at five o'clock, Sunday morning, September 3, 1871. The *Colonist*, of September 7, and 11, furnishes the following description of his death and burial:

It is with extreme regret that we announce the sudden death from apoplexy of Dr. Beauperthuy at the Leper Establishment on Kaow Island, where he was engaged in the development of his system for the cure of leprosy. We understand that the doctor was sleeping in his hammock when his stertorous breathing attracted the attention of Madame Beauperthuy, the wife of his nephew, M. Jules Beauperthuy, who resided with him. She attempted to arouse the doctor but without effect; in a few minutes he died without having rallied or spoken.

Information of the doctor's death was conveyed to the Settlement as promptly as possible; and Captain Twyford at once made preparations for the interment. M. Jules Beauperthuy decided that his uncle's remains should be buried at Bartica Grove. Later, at the request of His Excellency the Governor, the body was exhumed and found its last resting place in the beautiful Officers' Cemetery of the Penal Settlement. The funeral procession was headed by the Governor of the Colony and the Chief Justice, and included the

Superintendent and the principal officers of the Settlement.

As described to me by a well-preserved and intelligent Creole gentleman who, as a young man, knew Beauperthuy in the flesh: he was a tall, well-built man of commanding presence and attractive personality.

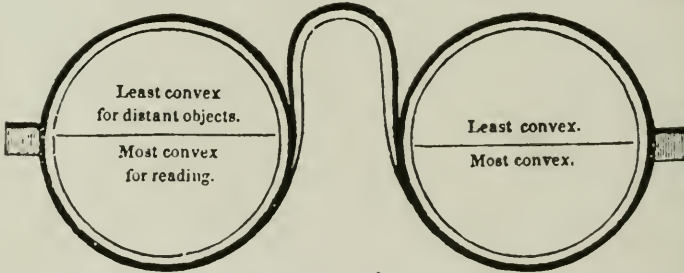
Whatever may have been the additions that Beauperthuy made to the science of

medicine, he was undoubtedly a model physician, cultivated, far-seeing, versatile and endowed with an analytical mind. Moreover he exhibited that unusual gift, a kindly enthusiasm that made friends and partisans of his patients—indeed of everyone with whom he came in contact. British Guiana has done what she could to keep his memory green.

## BENJAMIN FRANKLIN, THE INVENTOR OF BIFOCAL SPECTACLES

In a letter to George Wheatly, dated Passy, May 23, 1785, Benjamin Franklin describes and illustrates a pair of bifocal glasses which he had had made for his use by Dollond, the famous optician of London. Just why this useful invention of Franklin's was allowed to lapse into obscurity for many generations after its discovery, is not known. One would think that a practical optician such as Dollond would have grasped its value, and that its usefulness,

through which a man sees clearest and best at the distance proper for reading, is not the best for greater distances. I therefore had formerly two pair of spectacles, which I shifted occasionally, as in travelling I sometimes read and often wanted to regard the prospects. Finding this change troublesome, and not always sufficiently ready, I had the glasses cut, and half of each kind associated in the same circle, thus . . . . By this means, as I wear my spectacles constantly, I have only to move my eyes up or down as I want to see distinctly far or near, the



so easily demonstrated, would have introduced it at once into popular vogue.

Franklin, following his invariable custom, did not patent his idea, so that there was no restriction on Dollond or any other optician who wished to make such lenses.

By Mr. Dollond's saying that my double spectacles can only serve particular, I doubt he has not been rightly informed of their construction. I imagine it will be found pretty generally true that the same convexity of glass

proper glasses being always ready. This I find more particularly convenient since my being in France, the glasses that serve me best at table to see what I eat, not being the best to see the faces of those on the other side of the table who speak to me; and when one's ears are not well accustomed to the sounds of a language, a sight of the movements in the features of him that speaks helps to explain; so that I understand French better by the help of my spectacles.—*The Works of Benjamin Franklin*, Philadelphia, 1852.

# WILLIAM AND JOHN HUNTER<sup>1</sup>

By THOMAS McCRAE, M.D.

PHILADELPHIA, PA.

THE story of these brothers reads like a romance and is unique in the history of medicine. Two young men come to London without any special advantages, except their being Scotch, which perhaps is sufficient advantage in itself, and reach the top of their profession, one at his death being the leader in his field of work and the other perhaps the foremost surgical figure in the world.

The brothers had striking similarities and perhaps equally marked differences. Both had the spirit of the investigator; both were unsatisfied if they did not see things for themselves; both were keen for facts; both were great anatomists; both realized the unity of nature and that the departments of natural history could not be separated from one another; both were great natural philosophers; both were collectors and accumulated many treasures of various kinds; both influenced medical thought and advanced knowledge; both had remarkable pupils; and both have left their names deeply carved on the tablets of medical history. They differed in their education and hence to some extent in their interests. William, with a university education and more polished in the ways of the world, showed wider interests and in addition to his medical museum had a magnificent library and a wonderful collection of coins. As has been said, "he drank the cup of intellectual life with both hands." John with little education, as the term is commonly used, was rather scornful of books and his collections were concerned almost entirely with anatomy and natural history. Nothing in nature was without interest to him.

There has been much discussion as to

which of them was the greater, but such controversy does not seem worth while in view of the fact that both were great. Undoubtedly the majority verdict would be for John Hunter and there seems little question that his influence on science and medicine, using the term in a broad sense, was much greater than that of his older brother, but there seems no question that John owed much to his brother, who took him to London and started him on the path which led to such great success and attainment. It seems also fair to consider that John owed a great deal to Williams' influence, for there is a striking similarity in their methods of work, habits of thinking, and the realization of the unity of nature. It would seem altogether probable that John absorbed a great deal of this from the older brother. Much has been made of the quarrel which parted them and its occurrence is naturally a matter of regret. At this day it seems very difficult to arrive at any absolute judgment as to where the blame should be placed; perhaps it should be divided. Reading the evidence, it has always seemed to me that the greater part of the fault was probably with John Hunter. They were reconciled shortly before the death of William Hunter.

William Hunter, born in Scotland in 1718, received the greater part of his education at Glasgow University, from which he carried away a store of solid scholarship. He subsequently became associated with Cullen, with whom he had evidently a very close friendship, and a plan of partnership was formed by which each in turn should look after the practice for a year while the other studied away from home. William Hunter carried out the latter part of the agreement by spending a year in Edinburgh, but in

<sup>1</sup>Read at a Meeting of the Section on Medical History of the College of Physicians of Philadelphia, November 30, 1921.

place of returning to the practice, decided to go to London in 1741. He was fortunate in being associated with John Douglas, one of the leading obstetricians in London. He aided Douglas in his studies in anatomy and in preparing illustrations for a work which was never published.

In 1748 he visited the Continent and was particularly influenced by Albinus in Leyden, in whose work on injections Hunter took especial interest. Later he studied for a time in Paris. On his return to London, he found the field open, success came rapidly and he was appointed physician to the court. His special success was in obstetrics, but he also practiced as a physician.

One does not feel that either of the Hunters was a man who would be satisfied with success in practice and nothing else. The greatest interest in William's life seems to have been to teach. He was first and last a

teacher, beginning with lectures to naval surgeons in surgery in 1746 and later in anatomy. His last lecture may be said to have been given while he was dying. He showed throughout a complete comprehension of the unity of the laws of nature and of the importance of comparative anatomy. He was constantly carrying on investigations, of which those relating to the lymphatics, embryology, structure of the gravid uterus, and malformations may be mentioned as the most important. His work on the cellular membrane is worthy of mention. It has been said that he sometimes failed to see things but was rarely wrong in what he did see.

His interest in teaching led to the establishment in 1770 of a school in Great Windmill Street. This was primarily for the teaching of anatomy, but in connection with it there was a large museum and a remarkable library. He made a strong effort to make the school a permanent institution—a sort of Anatomical Institute—but did not succeed, as the Government was not sympathetic. At this time in

London teaching was poorly organized and the student had to receive his education in many different places. Had William Hunter's plans been adopted it might have been that around his anatomical school as a nucleus a great teaching institution would have developed.

Along with his practice, his investigations and his teaching went the habit of the collector not only of anatomical and natural history specimens, but also of rare books and coins. The number of treasures



WILLIAM HUNTER  
(1718-1783)

in his library is really surprising. There are 2,345 works published before 1600. The library is rich in pamphlets, records of the medical controversies of the day and in publications pertaining to American affairs, as well as in the classics and in examples of the progress of early printing.

William Hunter died in 1783, leaving his museum to his nephew, Matthew Baillie, for twenty years, after which time it was to go to the University of Glasgow. Anyone will be richly repaid by a visit to the Hunterian Museum in Glasgow. Particular attention should be given to the anatomical specimens and especially to those concerned with the uterus. The injections are most



wonderfully done and it is difficult to imagine how they could be improved upon. In recent years much has been done to put the specimens into proper condition and properly catalogue the library and collection of coins.

William Hunter's professional life was especially concerned with obstetrics and in this he rose to be the foremost authority in London. It seems curious to us to find the foremost obstetrician and one of the foremost anatomists of the day in the same man. Doubtless it was his specialty which made him take the particular interest which he did in the investigation of the gravid uterus. In this field of work he added greatly to knowledge and this is usually regarded as his best anatomical contribution. Whatever opinion we hold as to the position of William Hunter himself, there is no question of the men

who studied under him. He was a "man midwife" in a sense other than that in which the term was usually employed. He brought great men into the intellectual world of medicine.

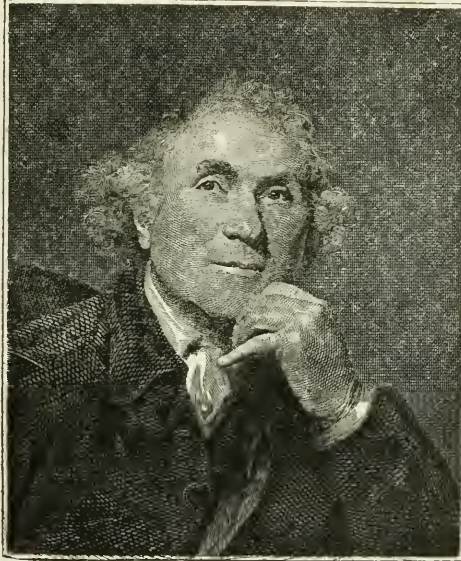
John Hunter, born in 1728, and ten years younger than his brother, had a very different life in youth. He took no interest in the acquirement of knowledge, neglected school and did not acquire a satisfactory education. All attempts to induce him to become interested in books were useless. Throughout his life he jeered at book learning and gloried in the fact that he had kept free of it. One cannot help feeling that sometimes under this lay a deep regret for his lack of

education. There may have been other reasons, however, for his rather biting comments on book learning, because many of the profession of that day knew little else and were more concerned with what had been written about disease than what they could observe themselves.

John Hunter's lack of general education undoubtedly affected his literary output, but in no way influenced his powers of observation and investigation. For him investigation and the collection of facts were all important; teaching apparently did not especially appeal to him, at any rate in the form of lecturing, and an early invitation from his brother William to give lectures on anatomy was declined. In later years his lectures on surgery were a trial to him and he apparently never became fluent in delivery.

He came to London in 1748 at the invitation of his

brother and at first was associated with him in his anatomical work. This opened up new interests for him, and for the rest of his life he was constantly engaged in investigations and trying to find out new things. He worked energetically at anatomy and did some hospital work under Cheselden and Pott. The next year he was giving demonstrations in anatomy, a testimony to his ability and industry. In the next few years he attended the hospital practice of Cheselden and later at St. Bartholomew's he studied under Pott. In 1754 he entered St. George's Hospital, with which he was associated for the rest of his life. William had plans to make up for John's lack of



JOHN HUNTER  
(1728-1793)

education and persuaded him to go to Oxford. But to the investigating mind of John Hunter, Oxford held no attraction and his stay was brief. The Oxford atmosphere of that day was not a congenial one for a man of Hunter's interests.

In 1756 he was appointed House Surgeon to St. George's Hospital, but held the post for a few months only. During this time he was improving his knowledge of human anatomy but evidently the realization that this was only a part of comparative anatomy came to him and he widened his field of work. With this was joined the study of physiology and the desire to associate the study of function with that of structure. This is an outstanding fact in Hunter's work—the importance of physiology and the value of the study of principles, so strongly illustrated in his later surgical work. Comparative anatomy became one of his great interests; animals from menageries or anywhere else, whales, birds and fish were sought after. There are many curious accounts of his experiences in obtaining specimens. The practice of surgery had compensations in that it provided the means of acquiring more specimens.

Ill health came later and for the purpose of change, in 1760 he entered the army and saw service abroad. This experience was not wasted time; he continued his studies in natural history and laid the foundation for his work, "Treatise on the Blood, Inflammation and Gunshot Wounds." On his return to London in 1763 he began the practice of surgery with prospects which could not be considered as encouraging. There was no lack of good surgeons. He was more interested in scientific work and was known as an anatomist, while he regarded surgery more as a means to an end. His saying, "I must go and earn this damned guinea," has become one of the favored expressions of the profession. There must have been many guineas, for very soon he established a "laboratory" outside of London. This was "a farm, a menagerie, an

institute of anatomy and physiology, and a villa." Dens for dangerous animals, ponds for fish and aquatic life, stables, kennels, cages and hives, were among the diverse furnishings of his estate. The tenants were as diverse. The study of bees engaged his attention for many years.

Success in practice came slowly, but in 1768 he was elected a surgeon to St. George's Hospital, an appointment of the greatest advantage to him. He was able to take "house pupils," among whom were Physick, of Philadelphia, and Edward Jenner. In 1773 he gave his first course of lectures on surgery, but lecturing was never easy for him and cost him much in labor and anxiety. They were new lectures on surgery, for they dwelt on principles rather than practice. Embryology, physiology, pathology and a discussion of the processes of disease and repair were included. But hard common sense was not lacking and always the value of experiment insisted upon, as shown by the celebrated advice to Jenner, "To try and not to think." The days were too short for his labors; one is appalled by the account of what he accomplished. He did an enormous number of dissections and *post-mortem* examinations himself and must have dissected thousands of animals. He had original records of the dissection of 315 different species of animals. His letters are full of appeals for specimens and for reports on points in natural history.

The death of Pott in 1788 left Hunter at the head of the surgical profession. Professional honors had come to him in full measure. But nothing interfered with his work; the learning of new things by observation and experiment was his passion. He died in harness and "with his boots on," which has been termed the death of a gentleman. The occasion was a tragic one. There was a dispute at a meeting in St. George's Hospital over a matter near to Hunter's heart. His anger brought on an attack of angina pectoris, from which he had suffered for many years, and the end came at once at

about the same hour as Marie Antoinette was beheaded in Paris.

His museum remains as a magnificent memorial. It was purchased by the Government and given into the custody of the College of Surgeons. It contained over 13,000 specimens. The museum and library are in the College building in Lincoln's Inn Fields.

To sum up John Hunter's many qualities and activities is difficult. He was a great investigator, an accomplished naturalist, a skilful anatomist, a physiologist, an experimental pathologist, an original thinker and, perhaps greatest of all, a stimulator of thought. He may well be regarded as the founder of scientific surgery and well did Sir William Osler say that he "combined the qualities of Vesalius, Harvey and Morgagni."

To estimate the extent of the influence of the Hunters on American medicine is

difficult. There are grateful references in letters to the advice given by William Hunter on the establishment of medical schools in this country. Many Americans studied in London under the Hunters; two should be mentioned, William Shippen, Jr., who gave the first course of lectures on anatomy in Philadelphia, and Philip Syng Physick, one of the most brilliant of early American surgeons. But the influence of the work and teachings of the Hunters must have been greater than can be stated in set terms.

Every medical man who visits Great Britain should make a point of visiting the museums left by the two brothers. The collection of William Hunter is at Glasgow University and that of John Hunter in the College of Surgeons in London. The work of their hands is there for him to see, and speaks, perhaps more plainly than their words could have done, of what they accomplished.

# SIR RICHARD BLACKMORE, M.D.

(1653-1729)

AN ACCOUNT OF HIS LIFE AND WRITINGS DRAWN FROM ORIGINAL RECORDS NOT  
KNOWN TO HIS EARLIER BIOGRAPHERS

By THOMAS NOXON TOOMEY, B.A., M.D.

ST. LOUIS, MO.

Sir Richard Blackmore is one of those men whose writings have attracted much notice, but of whose life and manners very little has been communicated, and whose lot it has been to be much oftener mentioned by enemies than by friends.—SAMUEL JOHNSON.

He was a chaste writer and he struggled in the cause of virtue even in those times when vice had the countenance of the great, and when an almost universal degeneracy prevailed.—COLLEY CIBBER.

**A**MONG the pleasant duties that come to those who can visualize and evaluate events long since forgotten to the world, there is none more gratifying than that of restoring to its proper place the memory of one who was the victim of unjust criticism. Not only do later generations profit by contemplating the life achievements of virtuous and able men, but they are better able to take the lessons into their own lives if they have before them a detailed account of all the chief events that entered into the life of a man who is presented for their admiration. It was the latter consideration that led the author to ransack old parish registers and other unutilized records for the details of Blackmore's life that were not known to his earlier biographers.

Richard Blackmore was born in Corsham, a small Wiltshire town near Bath, England. The day of his birth, usually believed to have been in 1654 or 1655, can now be stated to have been in September, 1653.<sup>1</sup> Richard was the son of Robert Blackmore, Gentleman, an attorney at law, and a member of an old and respectable Dorsetshire family in modest circumstances. The family of Robert Blackmore was not a large one. Richard seems to have had an elder brother, Thomas, who preceded him to London. Another one of the family, George, a brother or cousin, removed to Over in Cheshire.

<sup>1</sup> From the fact that he was seventy-six at the time of his death, October 9, 1729, and from the fact that he would have been fourteen instead of thirteen at the time he was entered in Westminster School, had he been born before September, 1653.

Richard had no menial employment during his boyhood, but was given the advantage of several years tutoring in a private country school. At the age of thirteen he was sent to St. Peter's Hall, Westminster School, London, for a part of one year, and then, on March 19, 1668, he was entered as a commoner in St. Edmund's Hall, University of Oxford. Eight years later, April 4, 1674, he took the degree of bachelor of arts, and on June 3, 1676, he was graduated with the degree of master of arts. Richard continued his studies at Oxford for the next five years. In the first of these he was employed part of the time as a tutor in St. Edmund's Hall, Oxford.<sup>2</sup> It was dur-

<sup>2</sup> That Blackmore had been the master of a primary school was the implication of the following lines that were written against him:

"By nature form'd, by want a pedant made,  
Blackmore at first set up the whipping trade;  
Next quack commenc'd; then fierce with pride he swore

That tooth-ache, gout and corns should be no more.  
In vain his drugs as well as birch he tried;  
His boys grew blockheads and his patients died."

—*Codrington.*

It is likely, however, that had he been an humble village schoolmaster the fact would have been too little known to have come to the ears of his enemies. That it was as a tutor at the University of Oxford that he found employment, is borne out by the following quotation from the well-known antiquarian, Hearne (3) who had been a student at St. Edmund's Hall: "That he (Blackmore) was a great tutor, and much respected, as I have often heard." *Remains*, ii, 169; and by the following entry in the *Athenae Oxonienses*, iv, 793: "Thomas Heynes . . . became a com. of S. Edm. hall under the tuition of Mr. Rich. Blackmore in the month of Nov., 1678."

ing his last five years at Oxford that he started on his first medical studies. The latter were almost certainly made in the university, as his critics would surely have made capital of it if Blackmore had been apprenticed to a physician. Furthermore, according to tradition, it was at the university that he, as a young medical student, asked Sydenham what he should read to further his medical studies. Sydenham's advice, "Read 'Don Quixote.' It is a very good book; I read it myself still," is well known, but usually misinterpreted. As pointed out by Dr. J. F. Payne in his biography "Thomas Sydenham," it is not likely that Sydenham meant to be disdainful to a young man whom he knew only as a medical student. What he undoubtedly meant to imply was, either, "Know human nature," or "It makes little difference what one reads, as only clinical observation and practice are able to make a physician." However, Blackmore took the advice to heart and read "Don Quixote" several times during his life.

As the medical studies at Oxford consisted mostly in reading the medical classics, with little opportunity for bedside studies, Blackmore left England in 1681 and went to Padua, which then was one of the foremost, if not the foremost, medical school in the world. He studied in Padua for two years, taking the doctorate in medicine in April, 1683. Dr. Blackmore then went to Geneva, where he was on May 21, 1683. Shortly afterwards he traveled in France, Germany and the Low Countries for six months.

Dr. Blackmore on his return to England promptly settled in London, where he commenced the practice of his profession in Cheapside, in the early part of 1684. By the end of his first year of medical practice he was in a position to marry. It was on February 9, 1685, that he married Miss Mary Adams in St. Paul's Church, Covent Gardens, London (4). Three years after he commenced practice, at the Comitia Majora Extraordinaria of April 12, 1687, he was elected a fellow of the Royal College of Phy-

sicians, a distinction that came to him rather early in his medical career. Little is definitely known of his accomplishments during the next nine years, except that he energetically espoused the cause of the Revolution. He attracted no literary notice to himself except for his epic poem "King Arthur," which was published in the beginning of March, 1694. That he rose in the profession to a consulting practice and an elite clientele



SIR RICHARD BLACKMORE  
(1650-1729)

is evident from the fact that he was appointed physician in ordinary to William III. He was knighted by that monarch at Kensington on March 18, 1696 (6) and later received a gold metal and chain from William. Though Blackmore had published his first epic the year before, it is known that he was knighted in recognition of his professional attainments. In fact, William III knew naught about poetry and cared less. In 1702, after the death of William III, Dr. Blackmore was made physician in ordinary to Queen Anne.

Sir Richard is known to have lived in Sadler's Hall, Cheapside, where he kept several servants and otherwise lived in the style of the wealthy. His friends, however, lived in the "city" or old part of London.

While still residing in Sadler's Hall, Dr. Blackmore wrote "A Short Story of the Last Parliament," published in 1699, "A Satyr against Wit," in 1700, and in the next year, "The Discommendatory Verses," and "A Paraphrase on the Book of Job," etc. The leisure hours of the next years were spent in writing "A Hymn to the Light of the World," published in 1703, "Eliza," published in 1705, "The Nature of Man," published in 1711, "Creation," published in 1712, and "Essays on Several Subjects," published in 1716.

During one of the last years of the seventeenth century, Dr. Blackmore was elected a governor of St. Bartholomew's Hospital. Except for serving from August 21, 1701 (14) on the committee that had supervision of the apothecary shop, he seems to have played a minor role in the affairs of the hospital. Sir Richard was voted to be an Elect of the Royal College of Physicians on August 22, 1716, and shortly afterwards, on October 1, 1716, he was named a Censor of the same body. A little later he moved from Cheapside to a house in Earl's Court.

During the last four years of Sir Richard's residence in London (1717 to 1721) his medical practice underwent a gradual decline on account of the infirmities that accompanied his advanced age. It was during this time that he finally permitted himself to believe that he had acquired an experience and judgment sufficient to justify the writing of medical works. His first medical text, "A Discourse upon the Plague, with a prefatory account of Malignant Fevers," was published in 1720. During the last years in London, his mind, always a devoutly religious one, was not preoccupied by medical writings, but dwelt at times on theological problems, a reaction often noted to accompany the declining years of life. As a result of this later bent he published in 1721 his "Just Prejudices against the Arian Hypothesis." In the following year he published "Modern Arians Unmasked, A New Version of the Psalms of David," and a religious epic called "Redemption: a

divine poem in six books . . . Added, a Hymn to Christ the Redeemer."

On October 22, 1722, Dr. Blackmore resigned his position as an Elect in the Royal College of Physicians, as he had a year before removed his household to Boxsted, Essex, where he spent the last eight years of his life. In his new home he devoted his entire time to writing, mostly on medical subjects, though incidentally he published, in 1723, a valuable "History of the Conspiracy against the Person and Government of King William III in the year 1695," and an epic poem called "Alfred." His medical writings will be noticed in a following chapter. The last of his works published during Sir Richard's lifetime was entitled "Natural Theology;" it was published in 1728. The last twenty months of Blackmore's life were saddened by the loss of his wife, who died in Boxsted on January 1, 1728 (10.) These months were devoted to the writing of "The Accomplished Preacher," a work that was, at his request, published posthumously in 1731 by the Reverend John White of Nayland, Essex, the minister of the Established Church who brought him consolation in his last sickness. Sir Richard Blackmore died on October 9, 1729 and was buried in the church yard at Boxsted. He left no children. In the church there is a monument bearing an inscription that he wrote to the memory of his wife, Dame Mary Blackmore, and to himself<sup>3</sup> (13).

<sup>3</sup>M. S. *Mariae Uxoris Ricardi Blackmore, Eq., Aur. et M.D.*

*Hic tumulata jacet cultrix sidissima christi,  
Cui fuit acensum pectus amore Dei;  
Optima amicorum, nata optima, et optima conjux;  
Urbana et prudens, cauta, benigna, proba.  
Quam memor illa fuit meriti, sed laesa nocenti  
Ignovit facilis, damnaque inulia tulit!  
Doctrinae rivos sacris è fontibus hausit,  
Et nondem sanctam vieit avara sitim:  
Hinc inculpatim discubat ducera vitam,  
Hinc docte exposuit spemque fidemque suam.  
Tu fugis ad coelos, thalami carissima consors,  
Te subito atque tubens, te, pia sponsa sequar.  
Moerens maritus scripsit, et hoc monumentum  
erexit.*

*M. S. Ricardi Blackmore, Eq. Aurat et M.D.*

A portrait in oil of Dr. Blackmore, by Colsterman, now hangs in the Royal College of Physicians, London. It was presented to the society by Richard Almack, Esq., in 1863.

## LITERARY WORKS

A profoundly moral man, Blackmore took offence at the gross licentiousness of the drama and poetic literature of the last half of the seventeenth century. Accordingly, it fell to his credit to be the first one who had the courage to protest against the insults and indignities that the theatres rendered nightly against public decency. Unskilled in the use of the pen, of an age when he could not hope to perfect himself in an art which he had not acquired in youth, and burdened with the cares of an extensive practice, he set himself the unremunerative task of writing poems that would elevate and instruct rather than vitiate and deprave youthful readers. It should be remembered that Blackmore never claimed for himself the higher poetic gifts. He realized that his muse was a right-minded, but not strikingly, handsome young lady. The motive that led Blackmore to literary efforts is best described in the following words with which he introduced himself to the public when he published his first poem:

I am a gentleman of taste and culture, and though I cannot ever hope to build up the nervous lines of Dryden, or attain the polish and brilliance of Congreve, I believe I can write what the generation sorely needs—works that intelligent men may study with improvement, devout Christians may read without being

Liber ad aetheras dum spiritus avolat oras,  
Sanguinis hic recubat corpus inane meum,  
Judice sed Christo tandem redeunte resurgens,  
(Id spero) vitum non moriturus agam.  
Tu quoque quae domis taciti collega sepulchri,  
Et dandum confors cara cubilis eras,  
Emergens mecum litui clangore lubente,  
Tu scandes socias regna beata fugas:  
Dumque arces coeli *Christum* resonare docemus,  
Fundima et *patri* cantica sacra Deo,  
Pectora praedulcis saturabit nostra voluptas,  
Quae fuit aeternum pura ab amore Dei.

Ætat. 76, Ob. Oct. 9, 1729.

offended, and pure-minded girls may peruse without blushing from shame. 'Tis true that I am a hard-worked doctor, spending my days in coffee-houses, receiving apothecaries, or driving over the stones in my carriage, visiting my patients. Of course a man so circumstanced must fail to achieve artistic excellence, but still I'll do my best.

Blackmore tells us that his earlier works were written "by such catches and starts in such occasional uncertain hours as his profession afforded, and for the greater part in coffee-houses, or in passing up and down the street." This apology led to his writings being compared to the rumblings of his chariot wheels. He had read, he says, "but little poetry throughout his whole life; and for fifteen years before had not written an hundred verses, except one copy of Latin verses in praise of a friend's book."<sup>4</sup> Shortly after his first poem, "Prince Arthur," appeared, it was attacked by John Dennis in a criticism which Samuel Johnson pronounced to be "more tedious and disgusting than the work which it condemns." Far from resenting the attack, Sir Richard took occasion in a later work to praise Dennis as "equal to Boileau in poetry, and superior to him in literary abilities." At the time of its publication, "Prince Arthur" received a very uncommon instance of favorable reception, for in two years it had three editions.<sup>5</sup> It found admirers in no less personages than John Locke and Molineux, but when Johnson wrote his life of Blackmore, the poem had been completely forgotten. Blackmore's ardor for poetry continued, and in 1700 he published "A Paraphrase on the Book of Job, etc."

The publication, in 1700, of "The Satyr Against Wit," in which the wits of the time were justly castigated on the score of

<sup>4</sup> The book he alludes to was "Nova hypothesis ad explicanda februm intermittentium symptomata, etc." by William Cole, M.D., 1693. Blackmore's Latin poem in praise of Cole's book was in the form of a dialogue between Jupiter and Apollo.

<sup>5</sup> Dr. A. Carlyle (*Auto.* p. 98) in a lonely inn in the South of Scotland found, in 1744, no books but the "Bible" and "Prince Arthur."

immorality and gross irreligion, raised up a swarm of enemies against Sir Richard. Immediately after the publication of "The Satyr" there appeared a collection of satirical "Commendatory Verses on the Author of the two Arthurs and the Satyr Against Wit, by some of his Particular Friends." The chief contributor was Tom Brown. Blackmore lost no time in replying with "Discommendatory Verses on those who are truly commendatory on the Author of the Arthurs, etc.," folio. This performance Dryden, who had previously criticised Blackmore's "Paraphrase" in the preface to his "Fables," lived long enough to ridicule in the prologue to the "Pilgrim" (1700). Garth attacked him in "The Dispensary," (iv, 172, etc.), bidding him to "learn to rise in sense and sink in sound." Sedley, Steel and others had their fling, but their malevolence was powerless to check Blackmore's intention to write in a good cause. But when he launched "Eliza, an Epic Poem in Ten Books," folio, she dropped still born from the press, for, as Johnson said, "the world was now weary of contending about Blackmore's heroes, for I do not remember that by any author, serious or comical, I have found 'Eliza' either praised or blamed."

At this time he turned some of his thoughts to the description of living characters, and wrote a poem on "The Kit-Cat Club," and "Advice to the Poets how to Celebrate the Duke of Marlborough," folio, 1709. On the occasion of another year's success, believing himself qualified to give more instruction, he wrote a poem of "Advice to a Weaver of Tapestry." Steele, who was then publishing *The Tatler*, lit on Blackmore's work, and treated it with such contempt that, as Fenton observed, he put an end to that species of writing.

In 1711 appeared "The Nature of Man," a poem in Three Books, octavo, and in 1712, "Creation, a Philosophical Poem Demonstrating the Existence and Providence of God," octavo. Whoever judges of the latter work by any other writings of Sir Richard will do it injury. While to modern readers

it presents few attractions, it was warmly praised by Addison in *The Spectator* (No. 339). Johnson prophesied "that this poem alone, if he had written nothing else, would have transmitted him to posterity as one of the first favourites of the English Muse." Even the splenetic John Dennis was excited to admiration. In beauty of versification, according to him, "Creation" equalled the "De rerum naturae" by Lucretius, while in solidity and strength of reasoning the august Roman was far excelled by Sir Richard. It is natural to inquire why an author surpassed his previous efforts. In this regard it is interesting to read what Johnson heard from a Mr. Draper, an eminent bookseller, who gave him the following account that he had received from Ambrose Philips, a hack writer:

That Blackmore as he proceeded in this poem laid his manuscript from time to time before a club of wits with whom he associated, and that every man contributed as he could, either improvement or correction; so that there are perhaps nowhere in the book thirty lines together that now stand as they were originally written.

Johnson's comment on the above quotation runs as follows:

The relation of Philips, I suppose, was true, but when all reasonable, all credible allowance is made for this friendly revision the author will still retain an ample dividend of praise; for to him must always be assigned the plan of the work, the distribution of its parts, the choice of topics, the train of argument, and, what is yet more, the general predominance of philosophical judgement and poetical spirit. Correction seldom effects more than the suppression of faults: a happy line or a single elegance may perhaps be added; but of a large work the general character must always remain; the original constitution can be very little helped by local remedies; inherent and radical dullness will never be much invigorated by extrinsic animation.

When *The Guardian* was abruptly ended in 1713, Blackmore considered the polite world to have become destitute of enter-



tainment, so in company with Mr. Hughes he commenced "The Lay Monk." The serial had three issues weekly from November 10, 1713 to February 15, 1714. Blackmore wrote the Monday and Wednesday papers and Hughes wrote the Friday papers. The serial<sup>6</sup> employed for its theme the supposition that some literary men, whose characters are described, had retired to a country house to enjoy scholarly discussions, and, resolved to instruct the public by communicating their discussions to the pages of "The Lay Monk." Whether any real persons were concealed under fictitious names is not known. Blackmore continued to write in prose for some time, as a volume of "Essays on Several Subjects," octavo, appeared in 1716 (2d Ed. in 2 vols. in 1717). One of the essays alluded to a godless author who had burlesqued a psalm. The charge referred to Pope, who afterwards avenged himself by including Blackmore in "The Dunciad" (ii, 259-268). Addison said, in No. 45 of *The Freeholder*, "I have lately read with much pleasure the 'Essays on Several Subjects' published by Sir Richard Blackmore," on which statement Swift (*Works* by Scott, 2d Ed., xii, 140) makes the remark, "I admire to see such praises from this author to so insipid a scoundrel, whom I know he despised." In his essays Blackmore took little care to propitiate the wits, for he scorned to avert their malice at the expense of virtue or of truth. One should, however, join with Johnson in the judgment that Blackmore's prose was not the prose of a poet but is languid, sluggish and lifeless: his diction is neither daring nor exact, his flow is neither rapid nor easy, and his periods are neither smooth nor strong.

Blackmore relapsed to metrical writing, and in 1721 he published "A New Version of the Psalms of David, fitted to the Tunes used in Churches." This work, being recommended by the archbishops and many bishops, obtained a license for its admission into public worship. Two later works, the

<sup>6</sup> In its collected form it was called "The Lay-Monastery."

religious epic "Redemption" and the heroic epic "Alfred," did not fare so well, as they attracted practically no attention.

In conclusion it should be noted that Samuel Johnson, who appraised Blackmore's writings more impartially and judiciously than any other critic, wrote of him as follows:

Blackmore by the unremitting enmity of the wits, whom he provoked more by his virtue than his dullness, has been exposed to worse treatment than he deserved; his name was so long used to point every epigram upon dull writers that it became at last a byword of contempt: but it deserves observation that malignity takes hold only of his writings, and that his life passed without reproach, even when his boldness of reprehension naturally turned up on him many eyes desirous to espy faults, which many tongues would have made haste to publish. But those who could not blame could at least forbear to praise, and therefore of his private life and domestick character there are no memorials.

As an author he may justly claim the honours of magnanimity. The incessant attacks of his enemies, whether serious or merry, are never discovered to have disturbed his quiet, or to have lessened his confidence in himself; they neither awed him to silence nor to caution; they neither provoked him to petulance nor depressed him to complaint. While the distributors of literary fame were endeavouring to depreciate and degrade him he either despised or defied them, wrote on as he had written before, and never turned aside to quiet them by civility or repress them by confutation.

He depended with great security on his own powers, and perhaps was for that reason less diligent in perusing books. His literature was, I think, but small. What he knew of antiquity I suspect him to have gathered from modern compilers; but though he could not boast of much critical knowledge his mind was stored with general principles, and he left minute researches to those whom he considered as little minds.

With this disposition he wrote most of his poems. Having formed a magnificent design he was careless of particular and subordinate elegances; he studied no niceties of versification; he waited for no felicities of fancy; but caught his first thoughts in the first words in which

they were presented: nor does it appear that he saw beyond his own performances, or had ever elevated his views to that ideal perfection which every genius born to excel is condemned always to pursue, and never overtake. In the first suggestions of his imagination he acquiesced; he thought them good, and did not seek for better.

The poem on "Creation" has, however, the appearance of more circumspection; it wants neither harmony of numbers, accuracy of thought, nor elegance of diction; it has either been written with great care, or, what cannot be imagined of so long a work, with such felicity as made care less necessary.

Its two constituent parts are ratiocination and description. To reason in verse is allowed to be difficult; but Blackmore not only reasons in verse, but very often reasons poetically; and finds the art of uniting ornament with strength, and ease with closeness. This is a skill which Pope might have condescended to learn from him, when he needed it so much in his "Moral Essays."

In his descriptions both of life and nature the poet and the philosopher happily co-operate; truth is recommended by elegance, and elegance sustained by truth.

In the structure and order of the poem not only the greater parts are properly consecutive, but the didactic and illustrative paragraphs are so happily mingled that labour is relieved by pleasure, and the attention is led on through a long succession of varied excellence to the original position, the fundamental principle of wisdom and virtue.

#### MEDICAL WORKS

Of the medical writers of the first quarter of the eighteenth century, probably none had a deeper appreciation, than did Dr. Blackmore, of the obligations that must be assumed by one who would write on medical subjects. That he should have, for thirty years, indulged his literary proclivities in fields apart from the one that brought him sustenance and employed his thoughts and hands, is testimony to his belief, during those years, that he should study disease still more before attempting to leave a medical legacy to the world. And then, when Dr. Blackmore did take up his pen in the

cause of medical advancement, he gave us no commentaries on the ancient authors, such as was the custom of the day, but gave us his own observations that were drawn entirely from his own experience. Though he had, some fifty years before, been anticipated in this modern style of writing by Sydenham, he unquestionably went much further than the latter in basing his writings entirely upon his personal experience. In drawing his delineations of diseases and their method of cure, from his practice rather than from transmitted knowledge, Blackmore incurred the criticism of those who were schooled in the medical classics. They charged that his writings shows "an affected contempt of the Ancients, and a supercilious derision of transmitted knowledge." In answer, Blackmore wrote in the preface to his "Treatise on Consumptions" as follows:

Some gentlemen have been disingenuous and unjust to me by wresting and forcing my meaning in the Preface to another book, as if I condemned and exposed all learning, though they knew I declared that I greatly honoured and esteemed all men of superior literature and erudition; and that I only undervalued false or superficial learning, that signifies nothing for the service of mankind, and that, as to physick, I expressly affirmed that learning must be joined with native genius to make a physician of the first rank; but if those talents are separated I asserted, and do still insist, that a man of native sagacity and diligence will prove a more able and useful practiser than a heavy notional (i.e., idealistic) scholar, encumbered with a heap of confused ideas.

Dr. Blackmore's first medical treatise was "A Discourse upon the Plague with a prefatory account of Malignant Fever." It was published in 1720 and was of practical and timely value as it treated of the two serious fevers that were of special concern to the English profession from 1718 to 1722. England, though she had been free of the plague after 1666, suddenly became alarmed following the devastation of Marseilles and the southern part of France by an epidemic

of the plague in 1720. The other disease discussed by Blackmore in his first medical work was malignant fever, or what we now call typhus fever. It was especially prevalent in London in 1710, 1714, 1718 and 1719. Blackmore's account of typhus fever has permanent value because, as Creighton says, "The period, 1718-1719, was an extremely slack tide in medical writing, insomuch that hardly any accounts of the reigning maladies remain, except those by Wintringham of York and Rogers of Cork." Indeed, as the year 1720 was in that respect little or no better than the years before, we have, hence, in Blackmore's book about the only one on fevers written in London in that year. Furthermore, Blackmore advanced the knowledge of his day when he recognized, before anyone else, that a certain disease which later came to be known as "little fever," "hysterical fever," or "febricula," was truly a fever, or an acute generalized infection, to use the modern term. It had for several years been remarked that "many, especially women, have been subject to fits of vapors (hysterical seizures), cold sweats, apprehensions, and unaccountable fears of death; every small disappointment dejected them, tremblings and weakness attended them." This disease passed for a simple hysterical or nervous disorder until Blackmore recognized that it had the earmarks of an epidemic fever, despite its afebrile or slightly febrile course. As an example of his clinical acumen and candor, we should note that he confessed his inability often to distinguish "little fever" from the prodromal state of typhus without observing the case for two or three days. We are unable to say whether this "little fever" was an infection that was etiologically different from typhus fever, or whether it was simply an anaphylactic reaction to the virus of typhus in one who had had typhus.

In 1721 the typhus abated in London, but smallpox became epidemic throughout southern England. Blackmore devoted his second medical work to the latter disease, and entitled the book, "A Treatise upon the

Small Pox in Two Parts . . . Part Two, a Dissertation upon the Modern Practice of Inoculation." (A second edition was printed in the same year.) The rôle in history of this latter work was, that in it Blackmore uttered one of the first protests against the practice of inoculating the smallpox; a practice that was introduced into England not more than two years before Blackmore wrote his tract against it. His protesting voice had been preceded in England by only two others—one having issued from the lips of a Rev. Mr. Massey in a sermon preached at St. Andrew's, Holborn, on July 8, 1722 (though not formally published), and the other by Dr. William Wagstaffe, published some six months before Blackmore's. That Dr. Blackmore was not courting a patronage by his opposition to inoculation is evident from the fact that his clientage, drawn as it was from the wealthy and courtly classes, had become converts to the new practice through the example set by George I and his eldest daughter. That the practice of inoculating the smallpox gradually waned (in Great Britain at least) after 1730, and was finally forbidden by Parliament, is sufficiently well known.

The third medical work written by Dr. Blackmore was published in 1724 and was entitled "A Treatise on Consumptions and other Distempers belonging to the Breast and Lungs." Though it went through three editions (1724, 1725, 1735), it called forth no professional comment. The next year Blackmore published two books on "the spleen" (or hysterical disorders). The first one was entitled "A Treatise of the Spleen and Vapours; or Hypochondriacal and Hysterical Affections, with three Discourses on the Nature and Cure of the Cholick, Melancholy and Palsies." (2d Ed. in 1726.) The second one was called "A Critical Dissertation on the Spleen." Except for one of the "Essays on Various Subjects," these two books were his only contributions to neurology. The thesis that Dr. Blackmore originated and defended in one of these works was to the effect that the seat

of the fires of passion was not located in the liver as taught by the ancients, but in the spleen, and that there was an inverse correlation between the volume of the spleen and the degree of continence practiced by the individual; a large spleen giving rise to continence and a small spleen vice versa.

The medical work published by Blackmore in 1726 was entitled "Discourses on the Gout, Rheumatism and the King's Evil." Whatever merit the discourses had in their day, they left no permanent prints on the sands of medicine. If consulted by later writers, they were at least never quoted. However, Blackmore's last medical book fared better as it received favorable mention on the continent (18). This last work was a collection of "Dissertations on a Dropsy, a Tympany, the Jaundice, the Stone, and a Diabetes"; it was published in 1727. Blackmore's paper, "Of the Miliary Fever," seems not to have been published during his lifetime. In 1751, it was included (on pp. 39 to 52) in the anonymous book, "The Cure of the Miliary Fever."

From the number of editions that were printed, it is evident that Blackmore's medical works found favor among the medical commonalty of his period. It is not surprising, however, that the later wits who wrote on medicine were unacquainted with much of what he wrote. Certainly his heavy and lifeless prose repelled rather than held the attention of his readers. That a brilliant style swings a long swath in medical as well as in other orders of literature, is well exemplified by the large number of readers that Watson, Osler, Trousseau, and Dieulafoy attracted to themselves. Nor was it solely a lumbering diction that kept Blackmore's medical works from winning caste among later writers. For, had he not quarreled with the Fathers of Medicine and left their ancient aphorisms out of his works? And, in place of the erudition that passed for medical ability in his day, had he not insisted on the necessity of Aesculapians being endowed with eyes to see and souls to comprehend?

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# THE TREATMENT OF CONVULSIONS (TETANY) WITH CALCIUM IN THE SEVENTEENTH CENTURY

By PAUL GALPIN SHIPLEY, M.D.<sup>1</sup>

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WHENEVER the true reason for the value of one or another therapeutic agent becomes apparent, we are usually pleased to ascribe its previous use to fortunate empiricism. In 1689, Samuel Smith of the Prince's Arms in St. Paul's Churchyard, published for Dr. Walter Harris, his book "De Morbis Acutis Infantum," which was to serve as the standard work on pediatrics for nearly a century. Walter Harris was no "lewd empiric." He was a fellow and censor to the Royal College of Physicians and physician to the King and Queen, and his medical creed was orthodoxy itself. He would have resented the term empiric bitterly and rightly, for he was a Galenical physician and no "chymist" though he had studied with the great Lemery. And yet Harris was responsible for the "empiric" use of calcium salts in the treatment of convulsions in infants—the specific antitetanic therapy of today—before the word tetany was known. The association of ideas which led him to the almost exclusive use of testaceous or shell-like alkaline medicines in the practice of pediatrics, was quite logical and was characteristic of the Galenist traditions of the time in which he practiced. His therapy was sound and represented the application of the science of his time to medicine. It was evolved, just as are some modern treatments, from laboratory investigation and clinical experience, and moreover Harris found acquiescence in his ideas in the writings of Hippocrates and the recovery of his patients. There was nothing new in the use of alkaline shells and stones in therapeutics. Harris merely increased the doses in which they were given and widened their field of use till it covered the whole of

pediatrics. Because these remedies served him well he abandoned the numberless cordials of the day for them and purged from his personal dispensatory—and no doubt from his patients—the diascordium, the antidota magna and the theriaca Andromachi of his contemporaries.

To Harris, Hippocrates was the wisest of physicians, the Divine Old Man, the Father of Physik, and Hippocrates had written 'Οὐ γὰρ τὸ ζῆδον οὐδὲ τὸ ὑγρόν οὐδὲ τὸ θερμόν. The ills of mankind were not caused by dryness nor moisture nor heat. Some other factors, beyond the power of the constitution to subdue, must be joined to one or the other of these to produce sickness. Disease was the result of the union of heat or cold, moisture or dryness with a "second quality," acidity, bitterness, saltness or sweetness or the like.

"Green glutinous vomitus, sower breath, the green Colour of the Excrementa and their sowerish Smell" were sufficiently convincing laboratory findings to lead Harris to believe that a prevailing "Acidity of the Humours" was the second quality which joined with heat or cold, etc., to produce the diseases of childhood.

That the green Colour . . . is merely due to an acid Bile will never be in the least doubted by those who divert themselves with changing colours into Green by the mixture of Vinegar and Acid Spirits.

Now also according to Hippocrates, "Cocta non crude sunt medicanda." The acidity must be subdued and concocted and then expelled from the body if the morbid condition it occasioned was to be cured. Expulsion could be accomplished by catharsis. It only remained to find the ideal means of accomplishing concoction and what better

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way could be found to concoct the acerbity of the acid humours than the administration of antacid alkaline remedies? Hence the *Pharmacopœia Harrisiana*.

Crab's eyes and shells, oyster shells and conches, cuttlefish bone, eggshells, chalk, coral, coralline, pearls, mother of pearl, both sorts of Bezoar, burnt hartshorn, burnt ivory, bone of a stag's heart, shavings of hartshorn, unicorn, Armenian bole, sealed earth, bloodstone compound powder of crabs' shells, Goa stone, confection of hyacinth (probably amythysts).<sup>2</sup>

These antacid remedies proved very effective against the gastro-intestinal disorders of children and so since the seeds of all maladies are the same, it was quite natural that Harris should have tried the medicines which were so successful against diarrhoea and thrush against convulsions.

Now the majority of the alkalies which were in Harris' list introduce an element into the testaceous therapy of which its authors took no account and it is small wonder that Harris and his disciples were successful in their practice against convulsions. They aimed at and attained a rational alkaline therapy, but circumstances placed in their hands the best possible palliative against tetany—sufficient doses of lime salts.

As an example of the successful concoction of the humours in convulsions by testaceous means, Harris cited in his book the case of the daughter of Goodman James Lowry.

The truth of this which I have said I have shown lately in a girl scarcely a year old, the daughter of Goodman James Lowry whom I saw shaken by the most vehement, frequent and severe convulsions which had racked her lips, eyes and almost every part of her body with slight intermission for many days before my

<sup>2</sup> "Oculi & chelae cancerorum, testae ostreorum, concharum, os sepiae, cortices ovorum, creta, corallia corallina, margaritae, mater perlarum, lapis Bezoar uterque, C.C.ustum, ebur ustum, os e corde cervi, rasura c.c. unicornu, bolus Armenia, terra Sigillata, lapis haematites & pulvis è cheli compositus, lapis è Goâ, species Confectionis de Hyacintho."

arrival. At that time she was very pale and of horrid aspect; constipated and what little stools she passed were very green. Nevertheless she screamed loudly although her strength seemed exhausted so that the neighborhood was filled with pity for her.

Throughout the duration of these convulsive movements and gripings, she took scarcely spoonfuls of food, being supported only by I know not what cordials. I undertook the treatment of this poor child and accomplished a cure with no other medicines than a few ounces of crabs eyes mixed with crystals of tartar. She was forced to swallow a scruple or more of this simple powder every hour in pennyroyal water or the like. And so this unfortunate infant completely and unexpectedly escaped death through the use of these things of little value and this without ostentation.<sup>3</sup>

The treatment and the reasons for the happy restoration of this child to health seem at first obscure enough today. Powder of crabs' eyes seems to savour somewhat more of charms and sigils than of any rational medication. But the *oculi cancerorum* which played so important a part in recovering Lowry's little girl had no sort

<sup>3</sup> Quin & hujus dieti veritatem multum comprobatum habui in puella annum vix unicum agente, filiâ cujusdam honesti viri, nomine *Jacobi Lowry*, *Convulsionibus* quas unquam vidi gravissimis, vehementissimis & frequentissimis correptâ, quae per pleures dies ante meum adventum labia, oculos, artus, imo & totum corpus minimâ cum intermissione exagitaverant. Fuit illa tunc tempotis pallidissima, nec non horrido aspectu; alvus interim astricta atque id quod parcissime dejiciebatur colore fuit viridissimum. Altâ tamen voce ejulabat, quantumlibet vires prosterni videbantur, ut viciniam commiseratione haud levi eadem afficeret. Durantibus verò hisce *motibus convulsivis* ac torsionibus ventris, vix cochleare alimenti aliquamdiu assumpserat, *Cardiacis* solummodò nesciò quibus subindè enutrita. Huic miserae infantulae subveniebam, & Curationem faeliciter adhibebam, nullis aliis medicamentis, nisi uncis aliquot *oculorum* (69) (*Pulvis oculorum cancerorum*) cum *crystallis tartari* admixtis. Simplicissimi illius *Pulveris* scrupulum unum aut amplius singulis horis in *aqua pulegii*, sut consimili statim deglutire cogebatur. . . . His viro paucis, & hac nullâ remedium pompâ, infans ille deploratus e faucibus imminenti fati, insperatò quidem, sed perfectè evadebat.

of right to that name, for neither were they eyes nor were they obtained from the crab. The bodies which the apothecaries sold under the name of crabs' eyes were in reality the gastric teeth or gastroliths from the gizzard of the common Crayfish (*Astacus fluviatilis*). Since those bodies are nearly pure calcium carbonate and phosphate, it may be seen that the child in this case was given about ten grains of the calcium salts at a time.

Harris believed that the testaceous medicines were more effective in the treatment of convulsions if castor was added to them, just as nowadays we give cod liver oil in

addition to calcium to children with tetany. Castor, which is the secretion of the abdominal glands of the beaver, contains beside large amounts of the phosphate, carbonate, urate and benzoate of calcium and potassium, about 2 per cent of a somewhat volatile aromatic animal fat. It is idle to speculate but it may be that castor contains the same organic substance to which cod liver oil owes its influence on calcium metabolism.

And so in the first year of William and Mary, Walter Harris, physician of London, treated tetany empirically with calcium salts according to the best science of his day.



## WHAT WAS KAPPA LAMBDA?<sup>1</sup>

AN HISTORICAL NARRATIVE, OUTLINED FOR THE READER'S AMUSEMENT, AS A TRAGEDY,  
ACCORDING TO THE USUAL DIVISIONS OF DRAMATIC CONSTRUCTION

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PROLOGUE. *Muchly on secret organizations in general, and slightly on Kappa Lambda in particular.*

As long as mankind has existed, apparently, it has been the custom for congenial, and usually convivial, spirits to form fraternal cliques. Within these organizations, bound by secret vows and solemn oaths, brotherhood is supposed to reign. Although the highest ideals toward the betterment of society professedly might always be implied to the outside world, yet a fundamental principle in every such band is to stand by each other; stand by each member, *come what may*.

All crafts and professions have suffered from these secret societies at some time or other, and it is doubtful if mankind in general will ever be completely free from some sort of esoteric masonry. Like the rest of the well-known attitudes of mind so entertainingly grouped together by Miss Rose Macauley under the cryptic term of "Potterism," organized and secret fraternalism seems too deeply rooted in our natures ever to depart from us. Elements of it are found in the mythology of all civilized peoples. It is to be seen again in the ceremonial and guarded initiation rites of all primitive tribes. What other complex of psychological factors functions in the formation of modern secret brotherhoods is difficult to uncover, unless, as so strikingly demonstrated by American Greek letter fraternities, it provides satisfaction to a selfish desire for esoteric superiority over the uninitiated, and, in addition, has a practical value in considerable social power and prestige.

It is peculiar that secret organizations have never made as great headway among

women as among men. Perhaps the greater suffering, borne so patiently by women for so many ages, has given them the unconscious knowledge that inner sisterhoods are hypocritical mockeries of the awful reality of everything that makes all women sisters. Or it may be that they know enough not to trust one another anyway, the most solemn vows of bondage notwithstanding.

Sooner or later, however, public opinion,

. . . public reason just—

Honour . . . with revenge enlarged . . . ,

clashes with the principles practiced by some organized secret clique or other, and then a scandal of perennial interest is almost certain to follow. The troubles over the Knights Templars, the Masons, the Ku-Klux Klan, and the Boxers, are of broad historic importance. More locally, it is constantly expressed in the difficulties over the Greek letter societies in our universities.

The medical profession has had its full quota of secret organizations, from the guilds in the Middle Ages to the present professional medical fraternities in American Universities. The nature of the profession itself, however, like law and theology, being beyond the ordinary layman's grasp, supposedly, has contributed to keeping the influence of such bodies subservient to the best ideals of the profession itself. There is always latent trouble in the mere suspicions aroused by the very presence of any group organized in secrecy in any profession. In medicine, however, the peculiar relation of physician to patient, between fellow practitioners; the element of faith involved, and

<sup>1</sup>Read before the Wisconsin Medical History Seminar, February 9, 1921.



the necessity of justifying it; the sense of individual responsibility, and withal, the wholehearted, manly spirit of the leaders in the profession,—all these factors have combined to keep medical secret societies well in hand. What decent, self-respecting physician wants to meddle with any such hocus-pocus anyway?

In the history of American medicine, isolated references to a powerful secret fraternal organization within the profession may be gathered here and there. They serve but to arouse an unsatisfied curiosity regarding its perplexing activities. This society was Kappa Lambda, which started about a hundred years ago, flourished for some ten or twenty years, and then apparently came to grief.

FIRST ACT. *The Beginning of Action: In which briefly is narrated for the reader's benefit the known facts (viz., the where, when and how) concerning the birth of the hero, the Kappa Lambda Society of Aesculapius, and also concerning the hero's father.*

One hundred years ago, Lexington, Kentucky (at which name all lovers of good horses pay heed) was already a vigorous and proud city, though scarcely forty years old; vigorous, because it could thrive in a rich wilderness, and proud, because it boasted in the possession of a university which was attracting to itself forceful leaders in education from east of the mountains, and had, so soon, in speech at least, acquired a dignity of age and tradition. Lexington was the metropolis of the new empire of the West, although its population was only 5,000; and Transylvania University, though yet unsheltered in the classic groves and halls of its dreams, was seething with activity.

As early as 1799, Dr. Samuel Brown was appointed Professor of the Theory and Practice of Medicine, and Chemistry, in Transylvania University; which position he held, probably as a sinecure, until 1806; as no regular organization of a medical department seems to have been made at this early time.<sup>1</sup>

The Medical School of Transylvania was apparently functioning in good order in 1816, but dissensions seem to have arisen in the faculty. In 1819 reorganization was effected, and lectures were delivered in "a commodious apartment, in the upper story of a large building, . . . (which was) then a tavern."<sup>1</sup> Dr. Daniel Drake, the enthusiastic founder of Louisville and Cincinnati Medical Schools, having resigned, "the medical faculty of Transylvania was composed of Dr. Samuel Brown in the chair of Theory and Practice of Medicine, Dr. Dudley in Anatomy and Surgery, Dr. Blythe in Chemistry, Dr. Richardson in Obstetrics and the distinguished Dr. Charles Caldwell called from Philadelphia to that of the Institutes of Medicine, to which was added *Materia Medica*—the school commenced a career of success and usefulness unparalleled in the Annals of Medical Schools in America."<sup>1</sup> If mere numbers is any criterion, this boast was true, for the school showed a growth from 37 students in 1819, to 281 six years later.

This period was one of general turmoil in medical education and practice in the United States, as witness the troubles aired before the public in the New York and Philadelphia schools, and in the frantic efforts being made to codify a system of ethics governing the profession. The reason for the difficulty may be found perhaps in the struggles of the profession to keep pace with the rapidly growing nation; in a mad rush of often unscrupulous youngsters to enter a field in which wealth and esteem were apparently so easily to be had, and of course, in the usual professional friction and jealousy aggravated by expansion. At any rate, medical schools were rising like mushrooms in the wilderness. A surfeit of doctors and medical mush was ground out, and not too finely, either. Strife and bad feeling was rampant among the professional brethren. It was but natural that some misguided idealist, with a background of classical tradition and sentimental temperament, should revert to some mystical scheme to

restore real fraternalism in the medical world.

Dr. Samuel Brown, Professor of the Theory and Practice of Medicine in Transylvania University, Lexington, Kentucky, was our idealist, and the Kappa Lambda Society of Aesculapius was his scheme.

Samuel Brown was a remarkable man. His life is summarized in Gross's "Autobiography" in a manner at once indicating the greatness expected of him by his friends, and the regret of his inability to justify these expectations:

I do not know that I have ever seen a more beautiful type of man than Dr. Brown. He had a large head, and a magnificent physique, and in his manner and address was a thorough gentleman. With a mind well stored with knowledge, added to wealth and leisure, he still failed to achieve reputation as a teacher, writer, or practitioner.<sup>2</sup>

Brown's was a restless, imaginative spirit, sentimental and idealistic, yearning always for a peace not to be found, as, in his flesh, he roved from place to place, impelled by family ties, friendships, or a drive to do his share in righting the world's wrongs. Observing everywhere the discord in his own vocation, the idea of a fraternal union pledging idealistic secret brotherhood in medicine appealed to his whole nature, and became his only great contribution.

Samuel Brown was born in Rockbridge County, Virginia, in 1769. His mother was a Preston, and his father a distinguished clergyman. He was educated at home, and received his collegiate training at Dickinson College, Pennsylvania. He studied medicine under Rush at Philadelphia, and with Hosack and McDowell at Edinburgh. Not being able to fulfill the Edinburgh requirements, he got his M.D. from Aberdeen. He practiced first near Washington, D. C., and later moved to Lexington, Kentucky, because his brothers had moved there. After a few years, he followed his kinsmen to New Orleans, and Natchez. Here he married, but lost his wife within a few years.

With his young children, he tried plantation life in Alabama for a while, and then when Transylvania Medical School was really starting in 1816, he came back to Lexington. At the reorganization in 1819, Daniel Drake tried to get him to go to Cincinnati, but Brown preferred the established security of Transylvania to the vicissitudes of Drake's experiment, and in 1823 persuaded Drake to return to Lexington. Following a trip to France, to visit his brother who was Minister to that country, Brown resigned from Transylvania in 1825. He lived for a while in Philadelphia, traveled extensively through this country, again went abroad, and in 1829 returned to his Alabama plantation. There he died in 1830, after a series of epileptic attacks.<sup>3</sup>

Brown must have had a striking personality. Once seen, he was not easily forgotten; his solidity and courtesy inspired respect and friendship not easily lost; his good intentions were at once sensed,—and yet, he was the kind of man, who, making an initial good impression, is thereafter always apologized for by his friends because of his failure to do the big things naturally expected of him. Michaux, traveling through America in 1802 for the French government, visited Lexington, and said of Brown:

A merited reputation undeniably places Dr. Brown in the first rank of physicians settled in this part of the country. Receiving regularly the medical journals from London, he is always in the channels of new discoveries, and turns them to the advantage of his fellow citizens. It is to him that they are indebted for the introduction of the cow-pox. He had at that time inoculated upward of 500 persons in Kentucky, when they were making their first attempts in New York and Philadelphia.<sup>1</sup>

Brown's nephew wrote of him:

He was an accomplished scholar in many branches of learning, and an enthusiast in his own particular profession. His colloquial powers were extraordinary, and he was gifted with a natural eloquence that made him one of the most fascinating lecturers of his day. Benevolent, attentive and liberal of his time and services

to the poor, he valued his professional reputation most highly, and scrupulously observed its strictest etiquette.<sup>4</sup>

All this on the surface: not one single solid contribution to medicine can be credited to Dr. Samuel Brown, even by his most ardent eulogist, Dr. René de La Roche. He was a dreamer, a builder of palaces-as-he-thought-they-should-be, and his architectural masterpiece was the Kappa Lambda Society of Aesculapius.

Having been itself an extremely secret organization, and having been in addition within a profession the inside workings of which seldom reach the profane and public eye, the actual details and records of Kappa Lambda are unknown. No better introduction to the history of Kappa Lambda and Dr. Brown's connection with it can be given than in the flowery apology for it written by René de La Roche.<sup>5</sup> La Roche was a brilliant and handsome Philadelphian; a voluminous writer, whose treatise on yellow fever is a classic, and himself an influential member of Kappa Lambda. The apology is long, being heavily padded for its own protection, but it is worth quoting. Speaking of Dr. Brown, La Roche says:

With an ardor alike creditable to his heart and understanding, he sought all means, by precept and example, to sustain the dignity, vindicate the honor, and raise the status of the profession. In his lectures, in his correspondence, and in conversation with his younger brethren, he took the greatest pains to inculcate, with that power of argument, and that facility of elocu-

tion and richness of illustration for which he was distinguished, and a warmth of feeling which evinced the deep interest he took in the subject, the necessity—to say nothing of the obligation—on the part of physicians, of so conducting themselves in their intercourse with each other, as to insure the existence of a perfect harmony in the ranks of the profession; and in no case to be forgetful, in their relation with society at large, of those ethical principles, the observance of

which serve to characterize the true gentleman. He expatiated on the honor and elevated rank of our calling, pointed out how greatly it had, but too frequently, been degraded, no less in our country than elsewhere, by the unworthy conduct and ungentlemanly and vulgar deportment of some of its members, and on the obligation we were all under to effect, with the least possible delay, a reform in that respect.

With a view to insure success in this attempt—a necessity for which no one can deny existed in this country a few years ago, and more partic-

ularly at the time here referred to—Dr. Brown had recourse to an expedient, which met with the full approval of all the professional friends to whom he communicated his views. I allude to the formation of an association or general medical society, intended to embrace all the leading, reputable, and influential practitioners of medicine that could be enrolled under its banners. This association he proposed to form through means of local societies established in various sections of the country. Its object was to unite its scattered members—whether residing north, or south, east or west,—into a single homogeneous body, and by fostering among them reciprocity of kindly, fraternal, and honorable feelings, insure the establishment and cultiva-



DR. RENÉ DE LA ROCHE  
(1795-1872)

tion of harmony in their ranks; while at the same time, it would, through various means, be instrumental in exciting emulation, and promoting the advancement of medical knowledge.

The society, which was originally planted in Lexington, where Dr. Brown was then attending to his professorial duties, and the existence of which was some years, for various reasons fully appreciated at the time, concealed from the public, was soon established in other places,—Philadelphia, New York, Baltimore, and other cities. Laws and regulations, framed by Dr. Brown, for the government of the entire association, were there adopted. By-laws, suited to meet special and local exigencies, were proposed. The Coan sage was with propriety selected as the patron of the body, and as a model most worthy of imitation. A promise, modelled in great measure on the celebrated oath of the father of medicine, was exacted of each member at the moment of his admission; to obtain which a unanimous vote of those present was necessary. By this promise the member bound himself to live in peace and harmony with, and to do everything honorable in his power to promote the welfare of his brethren in and out of the society, and to abide implicitly by a stringent code of ethics, that had been prepared for the guidance of the members in their intercourse with each other, and with society at large.

The local societies established in the above-mentioned places, those in Philadelphia and New York particularly, gradually acquired importance and efficiency. Their ranks filled through means of a sort of suction, on the part of the original and successively elected members. In regard to the real amount of success of the association at large, or of its local branches, in the attainment of the object contemplated, it is unnecessary to enlarge in this place. But whether this success has equalled or exceeded, or whether it has fallen short of the anticipation of Dr. Brown, and those who joined him in the enterprise, it is certain, that while in a few places the results may, from a variety of influential circumstances, have been nugatory or imperfect, in many more they were of a salutary character, and were nowhere injurious. So far as the effect on the profession of Philadelphia is concerned, I have elsewhere stated some facts, which may without impropriety find a place here. Before the reforming power was made to bear on the medical men of that city,

these, although inferior to none elsewhere, in point of intelligence, scientific attainment, or practical skill, so far from fraternizing, lived in an almost constant state of warfare,—quarreling, and even worse, was not uncommon among them, and now and then street fights occurred. This state of things gave way under the influence of the society. Soon after its establishment, harmony, comparative harmony, at least, was restored among its members, and before long, through their influence, among other medical men around them. The society did more. At its meetings much was done to excite emulation among its members, and to promote the advancement of medical knowledge. A journal, placed under the guidance of a committee of the society was, at the suggestion of Dr. Brown, established and continued to appear quarterly during six consecutive years.

After a prolonged existence the society closed its career, or rather ceased to hold its meetings. But the work of reform was in great measure accomplished. Peace among doctors was comparatively restored, and is now but seldom broken; and when the unwelcome event occurs, the infractor, whatever be his social or professional position, or the wrong he may have suffered, so far from eliciting the approbation of his medical brethren, is openly and decidedly censured by all. I cannot be wrong when I say that the originator, organizer, and active promoter of a plan of federation among us so complete, so harmless, and at the same time so promising of fruitful results, and which has brought forth such fruits, if not everywhere, at least in some places, is entitled to the gratitude of every American physician who feels an interest in the honor and dignity of his profession.<sup>5</sup>

How much salt this great apology needs will be apparent from what follows. It is interesting to note, however, that the same forces were at work in the formation of Kappa Lambda that succeeded later in establishing the American Medical Association in 1847, and in passing its elaborate code of ethics. The reasons for troubles and the final end of Kappa Lambda are clear on the face of La Roche's apology for it.

In regard to the exact date for the founding of the Society, only conjecture is possible. In 1831, during an investigation of a

secret organization within the profession in New York City, which was identified later as Kappa Lambda, it was brought out that the association had been in existence twelve years. This would make the date of its establishment at Lexington, 1819. How much the focus of trouble over the re-organization of Transylvania Medical School that year, with the departure of Daniel Drake, and the coming of Charles Caldwell, crystalized the vision of Dr. Brown into activity can only be guessed at. But it is not too much to hint that the arrival of "that beligerent Celt, Charles Caldwell" had something to do with it.<sup>6</sup>

SECOND ACT. The Rising Action: *In which some account is given of the progress of our hero (the Kappa Lambda Society of Aesculapius) in Philadelphia and New York, and further of some events tending to cast a shadow along the pathway of our hero.*

Of the progress of Kappa Lambda in Lexington nothing is known. It is likely that there it fulfilled some of its worthy objects stated so nicely by La Roche. Probably the same was true in most of the smaller places where branches were established. But in the large cities of Philadelphia and New York, its path became very rough, and when dragged into the pitiless light of publicity, it quickly wilted away. Nothing can be found concerning its career

in Baltimore, and it is doubtful whether a chapter ever was organized in Boston.

Dr. Brown, on the occasion of one of his many visits to Philadelphia and New York, probably organized these chapters himself. He seems at any rate, always to have maintained close personal touch with the Philadelphia body. F. P. Henry, in his "Standard History of the Medical Profession in Philadelphia," says:

This Philadelphia branch of Kappa Lambda was begun by Drs. La Roche, Samuel Jackson, C. D. Meigs, and Thomas Harris, and had harmony of the profession as one of its chief aims. Its influence was remarkably successful in this direction.<sup>7</sup>

The date of the organization of the Philadelphia and New York branches is uncertain. They may have been started early in the twenties, but no indications of activity are to be found until the year 1825.

The evidence of a powerful underground force in medical politics in the two big cities was first felt in

New York. Although there had been slight disturbances for many years in the College of Physicians and Surgeons, the high renown of its faculty, almost intact for twenty years, its steady growth, and rising character, made these of little consequence. Opposition to the policies of the faculty began to show in 1825. The Trustees

THE  
NORTH AMERICAN  
MEDICAL AND SURGICAL  
JOURNAL.

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CONDUCTED BY  
HUGH L. HODGE, M. D. | CHAS. D. MEIGS, M. D.  
FRANKLIN BACHE, M. D. | B. H. COATES, M. D.  
AND  
R. LA ROCHE, M. D.

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NON DOCTOR, SED MELIORE IMBUTUS DOCTRINA.

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VOL. I.

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PHILADELPHIA:  
PUBLISHED BY J. DOBSON, AGENT.  
JESPER HARDING, PRINTER.

1826.

TITLE PAGE OF THE FIRST VOLUME OF THE KAPPA LAMBDA  
SCIENTIFIC JOURNAL.

of the College, formerly exclusively composed of the faculty, but now including many city practitioners, started to interfere with the teaching and financial status of the professors. Considerable complaining was done by both sides to the Regents of the State of New York, and by an investigation and exoneration of the faculty, it was hoped that the matter was wholly settled. This was in 1825. The faculty was composed of such eminent men as Wright Post; David Hosack, the physician of Hamilton, and a leading figure in New York's social and literary life; Samuel L. Mitchell, U. S. Senator, and builder of the first light-house in this country; William J. MacNevan, an Irish refugee with Thomas Addis Emmet and a brilliant scholar and writer of European life; and John W. Francis, whose sketches of New York life are still delightful reading. The opposition group in the Trustees was composed of John R. Manley, later President of the State Medical Society, John Augustine Smith, a former member of the faculty, Alexander H. Stevens, later President of the American Medical Association, and Edward Delafield. Among this group was also Francis U. Johnstone, over whose election in the County Medical Society later on, Kappa Lambda came to grief. It developed some years after this trouble over the faculty of the College of Physicians and Surgeons, that the opposition group in the Trustees, some of whose names have been given, were all members of Kappa Lambda. It was this group that initiated the trouble, bringing accusations against the faculty which were not proved. In 1826, finding their efforts so hampered by the Trustees, the faculty, whose money had erected the Barclay Street building, resigned in a body, and in the fall of that year opened a new school, which affiliated with Rutgers College of New Brunswick, New Jersey, and became the Medical School of that institution. Its initial efforts were successful, but the opposition did not cease their attacks. The fight was carried to the legislature of the State, and

the charter of the new school was declared illegal after a four year struggle. With the closing of Rutgers Medical School, its distinguished faculty ceased teaching, and retired, with the exception of Valentine Mott, the greatest American preaseptic surgeon. The interesting point in this, is that upon the resignation of the original faculty of the College of Physicians and Surgeons, the opposition group in the Trustees—Stevens, Delafield, John Augustine Smith, and the rest, became the new faculty.

That the members of the Rutgers faculty, who erected a new building with their own funds on Duane St., realized an organized opposition operated against them is indicated in the veiled language used in their inaugural dissertations. They were powerless against it, however, for it apparently controlled both the County and State Societies, and in addition had a majority in control in the leading medical institutions and hospitals of the city. The feeling smouldered and bred suspicion and dissension until an exposé in 1830 uncovered the true nature of affairs.

In Philadelphia a new medical quarterly made its debut in 1826. This was the *North American Medical and Surgical Journal*, and its editors, as announced, were Drs. Hugh L. Hodge, Franklin Bache, Chas. D. Meigs, B. H. Coates, and R. de La Roche. Most of these men were connected with the justly famed Pennsylvania Hospital, and had a large influence on medical education in Philadelphia. In the Preface to the fourth volume of the Journal, issued in 1827:

The editors beg leave to explain, more fully than they have heretofore been permitted to do, the circumstances under which they have acted as conductors of this work.

Several years ago, an Association of American Physicians was founded by the zealous and philanthropic exertions of Dr. Samuel Brown, late Professor of Medicine in Transylvania University. This Institution, under the title of the Kappa Lambda Association of the United States, was intended to be co-extensive with the

Union, and accordingly, its branches, which in the progress of this design, have been established in various parts of the country, acknowledge a mutual connexion.

Not being charged to make any special communication on this subject, the Editors restrict themselves to the general announcement, that the objects of the Institution are to elevate the character of the Medical Vocation, by inculcating a higher standard of excellence, not merely in the professional or ministrative, but also in the ethical relations and duties of physicians.

THE

NORTH AMERICAN

**MEDICAL AND SURGICAL  
JOURNAL.**

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PUBLISHED BY THE

**Kappa Lambda Association**

OF THE

UNITED STATES.

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NON DOCTOR, SED MELIORE IMBUTUS DOCTRINA.

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**VOL. V.**

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**Philadelphia:**

J. DOBSON, AGENT, No. 108, CHESTNUT STREET.

1828.

TITLE PAGE OF THE FIFTH VOLUME OF THE KAPPA LAMBDA SCIENTIFIC JOURNAL. NOTE FIRST MENTION THAT THE JOURNAL WAS PUBLISHED BY THE KAPPA LAMBDA ASSOCIATION OF THE UNITED STATES

As one of the methods of attaining these useful ends, the Philadelphia K. L. Society from its central position, was entrusted with the publication of a Medical Journal, which guaran-

teed as to its principles, by the good feelings of a large body of physicians, might operate usefully among the Societies, and the profession at large,—combine, in a more didactic form, the scattered elements of knowledge, and disseminate more widely, in Reviews and Summaries of Intelligence, the means of perfecting the healing art.

This journal is the fruit of the authority thus delegated to the Philadelphia Society. It was committed to the direction of a publication committee, consisting of the present Editors, who, in the discharge of their duties, have now conducted it to the termination of the fourth volume.

There is no doubt that this journal served a very useful function, especially since there was scarcely another reputable journal published at the time in this country. The character of its original articles, and the careful preparation of its reviews made it very valuable. However, it is only too probably true that its contributors were limited to members of Kappa Lambda. It was upon this scientific publishing enterprise that Kappa Lambda relied as an excuse for worthy scientific objects when it began to get into trouble. If the journal had continued longer than its six years of life, it might have served more fully as this excuse.

About this same time, namely, 1826, a young medical enthusiast, George McClellan by name, entered medical politics in Philadelphia, and stirred things up by not only trying, but succeeding in establishing an entirely new School of Medicine, unrelated in any way to the old traditional medical institutions of the city. This was Jefferson Medical School. Of this, Dr. S. G. Morton wrote:

I venture to assert, from a personal knowledge of the time and circumstances, that no professional innovation was ever more unfavorably received by the physicians of Philadelphia, than this. It had a direct tendency to isolate its author, and certainly influenced his destiny through life. It was assumed and asserted that there was not patronage for the support of two

schools, and that the new one could only succeed at the expense of its elder rival. And, inasmuch as the whole scheme was regarded as professional heresy, it need not be added that its partisans met with no favor.

It is important to observe, however, that, owing to the general disapproval of the plan of a new college, Dr. McClellan met with great difficulty in organizing a medical faculty . . . Incongruous elements were thus associated together; dissensions arose, and disunion followed.<sup>8</sup>

Among the members associating with McClellan in the new project were Eberle, and Francis S. Beattie. It was with the latter that McClellan got into trouble. The causes are not known, but McClellan sued Beattie for libel, and it was from this trial that Kappa Lambda was brought into an unfavorable light. Beattie was removed in 1827 from the faculty of the new school, and the trial took place the year following. Beattie was a member of Kappa Lambda.

THIRD ACT. *The Climax: In which it is explained how our hero, the Kappa Lambda Society of Aesculapius, became seriously involved in difficulties in Philadelphia, the effects of which became even more serious in New York.*

Why it was that the editors of the *North American Medical and Surgical Journal*—Drs. Hodge, Bache, Meigs, Coates, and La Roche—should have felt it expedient in publishing the fourth volume of the *Journal* in the winter of 1827-28, to announce themselves as a committee of publication for the Kappa Lambda Association, and to explain so carefully the details of the founding of the Society and its alleged aims, is quite an interesting mystery. It appears that these editors took the stand in the libel suit against Dr. Beattie, brought by the impetuous founder of Jefferson Medical School, Dr. McClellan, in support of Beattie and to substantiate his statements against the character of Dr. McClellan. It seems that the suit engaged two trials, the first of which resulted in McClellan's favor. Beattie appealed, and it was in the second suit that he received such support. It is

possible that McClellan, suspecting organized action against himself, threatened to expose what he knew of medical politics in Philadelphia, and that the editors of the Kappa Lambda scientific publishing enterprise took occasion publicly to forestall such a move by an announcement in their journal. At any rate, the existence of the secret medical association was brought out in the trial, much against the will of the witnesses, who were the editors of the journal.

The public reports of the trial were made to the profession in Philadelphia only, but in October, 1829, a full account of the affair appeared in an article headed "Secret Medical Associations" in the *New York Medical and Physical Journal*. It was published anonymously, as if by a reporter, and its purpose was clearly to exonerate Dr. McClellan, while calling attention to the operation of an organized secret band against him. No comment was printed with the article, except "the expression of a sincere opinion that the medical atmosphere of New York is untainted by the exhalations of any branch from such a parent stem." This article drew a bitter reply in the pages of the *North American Medical and Surgical Journal*, in its next issue, that of January, 1830. The worthy editors of the Kappa Lambda scientific publishing enterprise rose to the defense of the Society, and in carefully veiled language justified their attacks on McClellan, cast aspersions on New York medical politics, and assured the public that Kappa Lambda did have a very excellent branch in New York City.<sup>9</sup> This was a mistake.

Open and public discussion of the secret organization followed in New York medical circles, where heretofore, "self-respect prevented gentlemen from giving utterance to their thoughts, or language to their feelings." On the 13th of October, 1830, general opinion among the medical men, outside the secret clique, found expression in a note to the *American Lancet*, signed "Medicus," the author of which was Dr. John Stearns,



long a friend of Hosack, Mitchell, and the old faculty of the College of Physicians and Surgeons. In this note, the secret organization was roundly denounced, and a list of known members, which included most of the new faculty of the College of Physicians and Surgeons which had displaced the old in 1826, was published.<sup>10</sup> This resulted in a libel suit against the *Lancet*, which came to nought. The men whose names were published as members of the now discredited secret band called upon Dr. Stearns, and with threats and pleadings induced him publicly to retract his accusations. What must have been his feelings, when he later found, that after all, his statements had been correct.

Dr. Samuel Brown, the founder of Kappa Lambda, died of epileptic attacks in January, 1830, just about the time this exposé of his cherished scheme for righting the evils of the medical profession in this country took place. What hand he had in these troubles is not known. Probably it was little.

**FOURTH ACT.** The Falling Action: *In which is told how our hero, the Kappa Lambda Society of Aesculapius, tried to save himself from defeat and utter ruin, and how it was all to little avail.*

On June 20, 1831, the President of the New York County Medical Society was directed by Hosack, Mitchell, and their associates to call a special meeting for the

consideration of the secret organization. At the meeting, to avoid open fighting, a committee composed of Drs. Philip E. Milledoler, Felix Pascalis, Abraham D. Wilson, and Hans R. Gram, was appointed to investigate the situation. A formal report was rendered by this committee, which was

approved by the Medical Society (consisting of 290 members) almost unanimously, and ordered published by its authority, October 27, 1831, over the hand of the recording secretary, Dr. F. Winthrop Walsh. The report was carefully and judiciously written. Details were given of the difficulties and discourtesies suffered by members of the committee in their endeavors to secure information from members of the secret society. Twenty-six members were mentioned by name; the society was assumed to have been founded twelve years previously; its two prominent requirements were stated to be secrecy and exclusiveness, "the former extending to the fact of the existence of the Institution and to its proceedings; whilst the latter is carried so far, as to exclude any candidate who does not receive a unanimous vote"; the pledge of the organization was given; the facts were presented that seven out of eight attending physicians at the New York Hospital were members (Valentine Mott having been appointed before the existence of the society), and that four

**REPORT**  
OF THE  
**COMMITTEE**  
OF THE  
**MEDICAL SOCIETY,**  
OF THE  
**CITY AND COUNTY OF NEW YORK,**  
APPOINTED TO INVESTIGATE THE SUBJECT OF A  
**SECRET MEDICAL ASSOCIATION.**

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NEW YORK.  
1831.

TITLE PAGE OF THE "REPORT" OF THE NEW YORK MEDICAL SOCIETY'S COMMITTEE

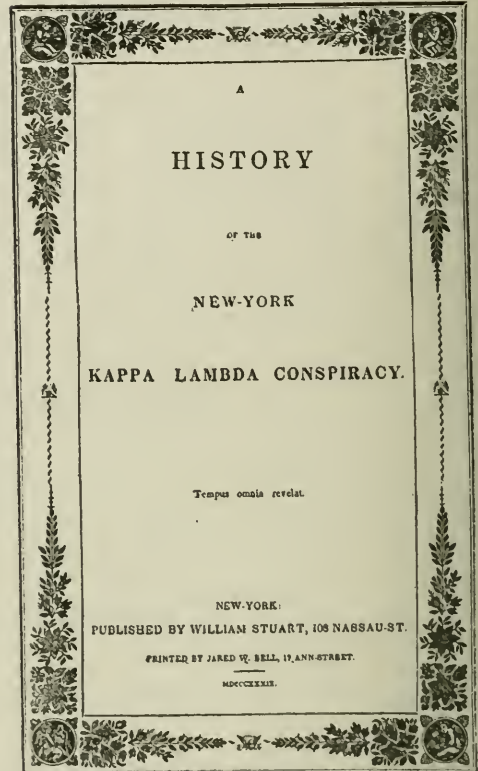
out of five consulting physicians at the New York Dispensary, and four professorships and the presidency of the College of Physicians and Surgeons had been secured for members of the secret association by unfair means; and after relating many instances of favoritism shown by members of the Society for one another, and of suspicious dealings in regard to the awarding of medical diplomas, the report closes with general remarks pointing out the danger to the profession of any band of organized secrecy within its ranks. Far from imitating the high moral standard of the oath of the ancient Aesculapian brotherhoods of Greece, upon which Kappa Lambda was modeled, its acknowledged pledge, as reported by the committee, was:

I, ———, do solemnly promise, that by all proper means, I will promote the professional respectability and welfare of the members of this association, and vindicate their characters when unjustly assailed, and that I will not demand any pecuniary acknowledgment for such instruction as it may be convenient for me to afford to the son of any indigent member, as may be in the opinion of the society qualified by his previous education, and talents, and moral character, to become a respectable and useful member of the profession, but that I will afford such instruction gratuitously, in conjunction with the members of the society.

While no such open exposé of conditions in Philadelphia were made, it was quite apparent that a similar situation existed. The editors of the Kappa Lambda scientific publishing enterprise were all prominently connected with the University of Pennsylvania Medical School, and the Pennsylvania Hospital, and in addition, made some interesting contributions to the history of Jefferson Medical School. Thomas Harris and Samuel Jackson, the only other Philadelphia physicians mentioned anywhere by name as being connected with the Society, were also high in the councils of the Pennsylvania Hospital and University during the years in which the Society flourished.

In 1832, the *North American Medical*

and *Surgical Journal*, without taking notice of events in New York City, suspended publication, with no previous announcement or apparent reason, and it was never



THE COVER OF THE PAMPHLET EXPOSING KAPPA LAMBDA

revived. After the open debate of 1831, in New York, the activities of the Society seemed to have been curtailed. F. P. Henry noted that:

In 1836, the Kappa Lambda Association of the United States, which had published twelve volumes of the *North American Medical and Surgical Journal*, was dissolved, and all its private papers, proceedings, etc., were deposited in the library of the College.<sup>11</sup>

Apparently Dr. Samuel Brown's utopian ideal of bringing peace to the medical profession of these United States had come at last to its own peaceful end.

FIFTH ACT. The Catastrophe: *In which is related how our hero, the Kappa Lambda Society of Aesculapius, finally comes to his end in a manner well befitting all heroes of classical tragedy.*

It may be recalled that one Dr. George McClellan, an impetuous and righteous fighter, had seen fit to oppose in action the Philadelphia Chapter of Kappa Lambda. Though apparently dead, it arose in spirit to trouble its one-time opponent. In 1838, for reasons which are wholly obscure, bitter dissension arose in the faculty of Jefferson Medical School, founded, it will be recalled, by this same George McClellan. The Trustees of the School saw fit to dismiss this faculty, and to appoint a new one. In the reorganized faculty list, the name of George McClellan was conspicuous by its absence, and in 1841, upon further reorganization of the faculty of Jefferson Medical College, the names of C. D. Meigs, Franklin Bache, and René de La Roche, prominent members of Kappa Lambda, become as equally conspicuous by their presence. Now, how came such things to be? One can never say for sure, but it must be admitted that it was a peculiar coincidence, at least.

In 1839, alarmed perhaps by these events in the City of Brotherly Love, physicians supposedly included, a very remarkable pamphlet made its appearance in New York City. It was entitled "A History of the New York Kappa Lambda Conspiracy," and was made up of anonymous essays taken from the "Medical Examiner," a department of the *New York Weekly Whig*. The collection of essays ran back as far as 1831, revealing the lurid details of the difficulties in the profession at that period. The immediate object of the pamphlet was to tell how the Kappa Lambda Society had won the election of Dr. Francis U. Johnston as President of the New York County Medical Society, by a majority of three, over the anti-Kappa Lambda ticket composed of Dr. John W. Francis for President, and Dr. John Stearns for Vice-President. The airing of the details of the machinery by which this election was secured made it a

hollow victory for Johnston. This matter transpired in 1838,—at which time, Dr. George McClellan suddenly came to grief in the School of his own founding.

The concluding essay of the pamphlet, however, rang the death knell of Kappa Lambda, so far as any active participation in medical politics in New York was concerned. It is a masterpiece in sarcasm and righteous wrath. It closes in this manner, leaving little doubt that if need be, swift and decisive action could be taken to end the matter completely if it ever threatened the welfare of the profession again:

*This Secret Society Kappa Lambda, with additional members, is still in active operation in this City, and continues to make the effort to control the Medical Institutions, and has become bold enough, by its success, to send in 1858 a delegate to the National Medical Association at Washington City.*

## REPORT.

The committee appointed to investigate the subject of the existence of a secret association of medical men in the city of New York, said to be for purposes derogatory to the profession, and injurious to the public, Report. That in undertaking the task assigned them, by the authority of the Medical Society, they supposed it not improbable, that they would be subjected, to the secret enmity of some who might consider their interests affected by an investigation of the subject of this report. They were not prepared however for gross, and unprovoked insult, from any member of the secret association. They confess their mistake, and acknowledge that although moderate in their calculation, they had attributed too much to the prudence and sense of decorum of certain of the profession.

The committee have examined the subject committed to their investigation with caution and deliberation. Whilst under the influence of a desire to protect from unjust obloquy, they have been actuated by a paramount sense of duty to the Medical Society, and the profession, to state truth, derived from authentic sources of information, and to express opinions deemed fairly inferable from same premises.

It is to be understood, that an association of medical practitioners was formed in this city about twelve years ago. Who may be strictly called the founders of it, we have been unable to learn.

The number of the original members was but small; Doctors, Thomas Cock, Alexander H. Stevens, John C. Cheeseman, and some others belonged to it, at an early date. New members have since been carefully selected, and gradually introduced, according as they were found to be suitable in any way to promote the objects of the association. The following physicians are now members, viz: Doctors Thomas Cok, Alexander H. Stevens, John C. Cheeseman, Francis U. Johnston, Stephen Brown, Ansel W. Lee, D. Atkins, Benjamin McVicker, Josiah D. Harris, Peter C. Tyrpen, John K. Rodgers, Martin Paine, M. Wildt, J. L. Phelps, Stephen Hasbrouck, John Conyer, S. W. Moore, J. W. Wood, A. Smith, G. Smith, J. M. Smith, D. W. Eason, R. K. Hoffman, J. C. Ellis, N. H. Dering, John Torrey. There are a few more whose names were not suggested to the memory of our informant, one of the members of the association.

Another member of the society, has insisted very strongly upon the circumstance that the institution is not "called Secret Association, but *Kappa Lambda*, a branch of the Parent Society." The committee do not know whether there is any cabalistic meaning in this designation. If any gentleman shall feel curious on this part of the subject, we can only inform them, that it is composed of two letters of the Greek Alphabet, answering to *k*, and *l*, in English, and for further instruction, refer them to those members of the association, who have been sufficiently educated, to know their name, and to explain its import. With, "Parent Society" or any other Societies external of New York—the plan upon which they may be conducted—the characters of their members—the principles upon which they are founded—or the abuses that have grown out of them, we claim no right to interfere. The independent establishment of New York, is amenable to the Medical Society of the city and county, and to it alone the committee shall confine its attention.

The avowed objects of this Association, are the promotion of good fellowship among the members, and the advancement of medical science. The first may be readily allowed, and the means used for securing it, be lauded for ingenuity and aptness. Indeed never has the physiological fact, of the existence of a close sympathy between the head and stomach, been more experimentally proved. With regard to the second object we remark, that it cannot be so readily admitted. The members when questioned on this particular have hesitated, and have not given direct answers.—

FIRST PAGE OF THE 1858 REPRINT OF THE 1831 "REPORT" TO THE NEW YORK MEDICAL SOCIETY

We now take leave, for the present, of the hated theme, believing that the days of Kappa Lambda are numbered, and that it is about to meet the fate of all things which creep upon the

face of the earth. A spirit is aroused which cannot be satisfied until its fate is sealed. We advise it to die as soon and as decently as possible, and the most decent death of which it is susceptible is *felo de se*; imitating in this as in so many other instances, the reptile which is said to pierce its breast with its own forked tongue, when escape is impossible. The next annual meeting of the Medical Society would, doubtless, vote a monument to its memory, damning it to everlasting fame. And we ourselves, here furnish an epitaph:

Pause, traveler! and read the tale  
Which I relate and yet bewail:  
Here lies the Kappa Lambda wight,  
Begot by Selfishness on Night.  
It was a thing of craft and guile,  
Which bowed and smiled, and wronged the while,  
Through dark and sinuous paths, by stealth,  
It crawled to office, gathered wealth.  
But sorely foiled its strife to trace  
Its name, 'midst those of noble race;  
It sought for fame and found but—place!  
Exposed, at length, to truth's pure ray,  
It raved, writhed, withered, passed away,  
And caused a laughing holiday!  
But hark! forevermore doth come,  
A voice of warning from the tomb:  
Does love of fame thy soul inspire,  
To soar above the vulgar throng,  
Like Cotopaxi's peak of fire,  
The lesser Andine cliffs among?  
Ponder my moral, and be wise,  
To learn betimes from other's woe,  
That thou cans't never, never rise,  
By sinking low.  
Does love of wealth or lust of place  
Allure to deeds of infamy?  
Pause! Buy not baubles with disgrace—  
Remember Me!<sup>12</sup>

But what was Kappa Lambda? The question remains quite unanswered after all.<sup>13</sup>

EPILOGUE: *In which, really, there is nothing much to say.*

No man, or group of men, can long stand against the terrible assaults of righteous ridicule, and with this crushing blow from New York City against the Kappa Lambda Society of Aesculapius, peace descended,—comparative peace at least, (to paraphrase Dr. René de La Roche's apologetic words) on the medical profession of these United

States, even as Dr. Samuel Brown had so ardently wished that it would.

But as Kingsley in his preface to "Hypatia" had occasion to observe, the old foes are continually rising against us, disguised it may be in new faces. For some unknown reason, some agency took the liberty of reprinting in 1838 the report to the New York Medical Society of the committee appointed to investigate the secret medical association, with no other comment than the following prefixed to the first page of the report:

This Secret Society Kappa Lambda, with additional members, is still in active operation in this City, and continues to make the effort to control the Medical Institutions, and has become bold enough, by its success, to send in 1858 a delegate to the National Medical Association at Washington City.

The 1831 report then follows verbatim.

The presence of a dozen or so Greek letter fraternities in our American Medical Schools, and holding their members even in practice, may be a matter for no concern at all. But the mental attitude so commonly found along "Main Street," and pictured by Mr. Sinclair Lewis in so realistic, and therefore in so unpleasing a manner—this attitude, with its worshipful regard for any esoteric order of bird or beast, with the very utilitarian benefits to be derived therefrom, should really not be the attitude of sane men practicing medicine. What man can meddle in such hocus-pocus, and retain his self-respect? Physicians are commonly reputed to be, and indeed, many of them even admit themselves, that they are just a little better than the ordinary run of men.

#### NOTES

<sup>1</sup>Quoted from "A Brief Sketch of the History of Lexington, Kentucky and of Transylvania University, Delivered as an Introductory Lecture to the Winter Course in the Medical Department of Transylvania University, on Monday evening, November 6th, 1854, by Robert Peter, M. D., Professor of Chemistry, Pharmacy, etc., etc., etc. Published by the Request of the Medical Class. Lexington, Ky., D. C. Wickliffe, printer, 1854."

<sup>2</sup> "Autobiography of Samuel D. Gross," Philadelphia, 1887, i, 44.

<sup>3</sup> Most of these details of Brown's life were culled from René de La Roche's eulogistic memoir of Brown, in Gross's "American Medical Biography," Philadelphia, 1861.

<sup>4</sup> Letter of Orlando Brown to Dr. Robert Peter, Oct. 31, 1854.

<sup>5</sup> Gross, "American Medical Biography," Philadelphia, 1861, p. 243.

Two or three points are worth noting in this remarkable apology, written perhaps around 1859 or 1860:

1. Frank admission of secrecy.
2. Brown's guiding hand in framing its regulations.
3. The acknowledgement that a unanimous vote of those present was necessary for admission.
4. The hesitancy in regard to its success.
5. The establishment of the *North American Medical and Surgical Journal* at Brown's suggestion.
6. Finally that the society did not close its career, —but "rather ceased to hold its meetings."

<sup>6</sup> Caldwell, it seems, was in continued difficulty with his colleagues at Transylvania, and speaks of them, in his "Autobiography" with profound contempt.

<sup>7</sup> F. P. Henry. "Standard History of the Medical Profession in Philadelphia," Philadelphia, 1891. The remarks quoted form a footnote to a statement that the *North American Medical and Surgical Journal* was published by the Kappa Lambda Association of the United States.

<sup>8</sup> From the biographical sketch of McClellan in Gross's "American Medical Biography."

<sup>9</sup> Medical Politics. "In looking over the pages of the *New York Medical Journal* for October last, our attention was arrested by an article entitled Secret Medical Association. It consists of a few lines introductory by the Editor, and a very copious extract from what purports to be the report of a 'Trial of a Suit brought into the District Court, for the City and County of Philadelphia, by George McClellan, M.D. against Francis G. Beattie, M.D. for a Libel.' We marvel greatly at the ready credence which the editor of that journal has thought fit to give to the indecent and unjustifiable attacks against the Kappa Lambda Society of this city, and the notoriously false statements of the motives for the feelings and conduct of some of its members, as contained in the extract. A regard for the common courtesies of life, to say nothing of the higher principles of justice and honour, ought, one would suppose, to have restrained him from becoming, as he has virtually become, the sponsor for the aspersions cast on estimable, and we may add esteemed individuals, by an anonymous scribbler, to whose pamphlet there is not, as we are informed, even the name of a printer affixed. The

drift of this self-styled impartial reporter is to exonerate Dr. McClellan from censure, to use a mild phrase, by impeaching the motives and conduct of every person whose testimony during this and a former trial was at all adverse to his moral and professional character. Why this so-called *impartial* account is so sedulously withheld from the Philadelphia public, that very few persons within the circle of our acquaintance have been able to procure a sight of it, and yet so industriously directed, as it would seem, to other remoter quarters, and persons who cannot become acquainted with the real state of things, is of itself sufficient evidence of the badness of the cause which it advocates, and the unsoundness of the logic and perversions of facts by which it pretends to set forth this cause. Bat-like, its reporter shuns the broad light of day; his appeal must necessarily be then to the sympathies of those whose vision is like his own. If he find such with whom he can commune in darkness, we shall esteem ourselves happy in having them pointed out to us, that we may avoid becoming the objects of their vampire propensities. But we must confess that we have been greatly surprised and chagrined on his account, to find a professional man, in the responsible station in which the New York Editor stands, giving, on such authority as this pamphleteer, a ready ear to slander against a society, with the general purposes of which he either was or might have been readily acquainted; and of the character of whose members he was bound, before taking such a step as he has done, to inform himself.

"When, in reference to the Kappa Lambda Society of this city, he utters 'the expression of a sincere hope that the medical atmosphere of New York is untainted by the exhalations of any *branch* from such a parent stem,' he speaks with unjustifiable if not affected ignorance of the real state of things. Does he mean to claim for New York an uncommon purity of medical atmosphere, and its remarkable exemption from the storms of party, the polluted blasts of detraction, or any taint of selfish passion; and then contrast such a pleasant state of things there with that prevailing here. He well knows the history of medical politics in his own city —let him learn from us something of that which influences us in ours. We have not here two great medical parties disturbing the social comfort of the city and agitating the state. A very large majority of physicians in Philadelphia are intent on fostering the most amicable relations with each other; each willing to aid his professional brother in all his *fair and honourable* views; and even when he cannot approve, content, for the sake of peace and charity, to be silent. If we could efface the scandalous chronicles in which the hero of the impartial reporter has been such a conspicuous actor, we should be at a loss to find anything of moment during the last eight or

ten years which has disturbed the general tranquility of the profession in this city. We will not assert that this peaceful state of things has been solely the work of the Kappa Lambda Society; but we are very sure that it has contributed to this end. Now, agreeable to this view of the matter, we really do not see any reason why the New York Editor should deprecate a branch in his city from such a 'parent stem' here. We are taught the policy of taking a lesson even from an enemy. Where would be the harm in New York borrowing wholesome ethics and a well regulated medical code from her rival? Can the Editor of the Medical and Physical be really ignorant of the fruits of our tree? Is he now for the first time to be told of the code of ethics by which the Kappa Lambda Society is governed; and which it caused to be printed, with the name of the *author* from whom it was taken on the title page, and that of the *printer* at the end of the pamphlet? Was it for him to be ignorant of the annunciation of the purposes of the Society, distinctly given years ago (January, 1827) in an introduction to one of our volumes? How could he, after this annunciation, and with the title page of the *North American Medical and Surgical Journal* staring him in the face, and a knowledge of the heading of many papers in it 'read before the Kappa Lambda Society,' still allow to pass without comment or reprehension the assertion of the Reporter, that the manner in which the members 'pass their time at the meetings of the Association, or how their common funds or united efforts are applied, has not been made known?' Would he, in any other case than the present one, tolerate the singular impudence which should adduce, as a proof of partially and unfair criticism or sinister dealing in a journal, the circumstance of five 'respectable men as individual editors' consenting to have their names published with it, and to act as agents of a Society which held the right of property in the work? As if the very fact of their allowing their names to be put forward, was not of itself a strong and sufficient guarantee of the purity of purpose and independent bearing of their colleagues of the Society. There is no review in Great Britain or in this country which furnishes as

strong a pledge of independence to its readers, as was done in the measure thus causelessly aspersed by the reporter. The journal emanating from the Society is in his opinion wanting in impartiality, because it is not favourable to the pretensions of his friend. But let us ask, what journal is, or can be, favourable to a person who requires for his justification a sacrifice of the character of all professional rivals, however, venerable for their years, or estimable for their skill and upright conduct, or whatever may be the particular society or social interests to which they belong. Bad indeed must be that cause in which even a favorable verdict is deemed inadequate to heal the many wounds of reputation, without the additional aid of an anonymous 'Report' and of studied misrepresentations."

Gross in his "Autobiography" infers that Beattie brought the suit against McClellan. This is incorrect. Gross makes no reference to the circumstances.

<sup>10</sup> This list included Alexander H. Stevens, John Augustine Smith, John B. Delafield, and other prominent members of the New York profession.

<sup>11</sup> This statement is made in referring to the growth of the Library of the College of Physicians, Philadelphia. It is not known whether these papers are still there.

<sup>12</sup> This pamphlet was apparently distributed throughout the professional circles of the country, and among prominent laymen. In the front of the pamphlet, the *New York Weekly Whig* stated that it was prepared to defend with reliable evidence any of the remarks contained therein. In view of this statement, and of the fearless publicity given to names and deeds, it is not strange that the members of Kappa Lambda could not stand against public opinion, and that "after a prolonged existence, the society closed its career, or rather ceased to hold its meetings."

<sup>13</sup> There is to be found much interesting material about Transylvania and Dr. Samuel Brown in the Filson Club Publications, Number 20; and about these, with references to Kappa Lambda in the Historical Number of the *Kentucky Medical Journal*, November, 1917.



## EDITORIALS

### THE PINEAL GLAND AND SNUFF

The following *jeu d'esprit* was written by George Berkeley (1685-1753), the famous bishop of Cloyne, whose medical learning is chiefly known through his advocacy of tar-water as a panacea for all diseases.

He was one of the foremost metaphysicians of his age and the friend and intimate of Addison, Steele, Pope, and Arbuthnot. Swift was his friend; and Esther Vanhomrigh, Swift's "Vanessa," left Berkeley half of her property.

To Americans Berkeley possesses a special interest because of his schemes to further the moral and intellectual welfare of the Colonies. He proposed to establish a college in the Bermudas for the education of the children of the planters and of the natives, its grand object being to send forth missionaries to propagate the Protestant religion. In furtherance of his plan he went to America in 1728, remaining there until 1731. Most of this period he passed in New England, at Newport, Rhode Island, where he bought a farm. When he left America he sold the property he had acquired there and made over the proceeds to Yale College for the foundation of scholarships. He also gave books both to Harvard and Yale, and an organ to Trinity Church at Newport.

Berkeley was not a practical anatomist and only an amateur physician, but his standing as a metaphysician and theologian gave much weight to his opinions on all subjects. His tar-water was widely vaunted and won endorsement from many

persons of all classes. He was one of the most universally popular men in England, and his benevolence and philanthropy caused him to be universally respected, even by those who ridiculed his panacea.

In 1744 he published his "Siris, a Chain of Philosophical Reflections and Inquiries concerning the Virtues of Tar-water, etc.," which went through a number of editions and was translated into French, German, Dutch and Portuguese.

Berkeley died a poor man because of his generosity. He not only worked for the betterment of mankind but gave away the large sums which at times came into his hands, from his preferments or other sources.

### PHILOSOPHICAL SNUFF

O philosophy, thou guide of life, and discoverer of virtue!—*Cicero*.

TO NESTOR IRONSIDE, ESQ.

TUESDAY, APRIL 21, 1713.

Sir,

I am a man who have spent great part of that time in rambling through foreign countries which young gentlemen usually pass at the university; by which course of life, although I have acquired no small insight into the manners and conversation of men, yet I could not make proportionable advances in the way of science and speculation. In my return through France, as I was one day setting forth this my case to a certain gentleman of that nation with whom I had contracted a friendship, after some pause he conducted me into his closet, and, opening a

little amber cabinet, took from thence a small box of Snuff, which he said was given him by an uncle of his, the author of "The Voyage to the World of Descartes"; and, with many professions of gratitude and affection, made me a present of it—telling me at the same time, that he knew no readier way to furnish and adorn a mind with knowledge in the arts and sciences than that same Snuff rightly applied.

You must know, said he, that Descartes was the first who discovered a certain part of the brain, called by anatomists the Pineal Gland, to be the immediate receptacle of the soul, where she is affected with all sorts of perceptions and exerts all her operations by the intercourse of the animal spirits which run through the nerves that are thence extended to all parts of the body. He added, that the same philosopher having considered the body as a machine or piece of clockwork, which performed all the vital operations without the concurrence of the will, began to think a way may be found out for separating the soul for some time from the body, without any injury to the latter; and that, after much meditation on that subject, the above-mentioned virtuoso composed the Snuff he then gave me; which, if taken in a certain quantity, would not fail to disengage my soul from my body. Your soul (continued he) being at liberty to transport herself with a thought wherever she pleases, may enter into the Pineal Gland of the most learned philosopher; and, being so placed, become spectator of all the ideas in his mind, which would instruct her in a much less time than the usual methods. I returned him thanks, and accepted his present, and with it a paper of directions.

You may imagine it was so small improvement and diversion to pass my time in the Pineal Glands of philosophers, poets, beaux, mathematicians, ladies, and statesmen. One while, to trace a theorem in mathematics through a long labyrinth of intricate turns and subtleties of thought; another, to be conscious of the sublime ideas and comprehensive view of a philosopher, without any fatigue or wasting of my own spirits. Sometimes, to wander through perfumed groves, or enamelled meadows, in the fancy of a poet: at others, to be present when a battle or a storm raged, or a glittering palace rose in his imagination; or to behold the pleasures of a country life, the

passion of a generous love, or the warmth of devotion wrought up to rapture. Or (to use the words of a very ingenious author) to

Behold the raptures which a writer knows,  
When in his breast a vein of fancy glows,  
Behold his business while he works the mine,  
Behold his temper when he sees it shine.

*Essay on the Different Styles of Poetry.*

These gave me inconceivable pleasure. Nor was it an unpleasant entertainment sometimes to descend from these sublime and magnificent ideas to the impertinences of a beau, the dry schemes of a coffee-house politician, or the tender images in the mind of a young lady. And as, in order to frame a right idea of human happiness, I thought it expedient to make a trial of the various manners wherein men of different pursuits were affected; I one day entered into the Pineal Gland of a certain person who seemed very fit to give me an insight into all that which constituted the happiness of him who is called "a man of pleasure." But I found myself not a little disappointed in my notion of the pleasures which attend a voluptuary, who has shaken off the restraints of reason.

His intellectuals, I observed, were grown unserviceable by too little use, and his senses were decayed and worn out by too much. That perfect inaction of the higher powers prevented appetite in prompting him to sensual gratifications; and the outrunning natural appetite produced a loathing instead of a pleasure. I there beheld the intemperate cravings of youth, without the enjoyments of it; and the weakness of old age, without its tranquillity. When the passions were teased and roused by some powerful object, the effect was, not to delight or soothe the mind, but to torture it between the returning extremes of appetite and satiety. I saw a wretch racked, at the same time, with a painful remembrance of past miscarriages, a distaste of the present objects that solicit his senses, and a secret dread of futurity. And I could see no manner of relief or comfort in the soul of this miserable man, but what consisted in preventing his cure, by inflaming his passions and suppressing his reason. But, though it must be owned he had almost quenched that light which his Creator had set up in his soul, yet



in spite of all his efforts, I observed at certain seasons frequent flashes of remorse strike through the gloom, and interrupt that satisfaction he enjoyed in hiding his own deformities from himself.

I was also present at the original formation or production of a certain book in the mind of a Free-thinker, and believing it may be not unacceptable to let you into the secret manner and internal principles by which that phenomenon was formed, I shall in my next give you an account of it. I am, in the mean time,

Your most obedient humble servant,

ULYSSES COSMOPOLITA.

### AN UNIQUE ENGRAVING

The accompanying engraving is the frontispiece to Andreas Hütter's "Fünfzig Chirurgische Observationen," Rostock, 1718.

So far as we know it is the first pictorial representation of a military camp hospital.

The surgeon wears the characteristic uniform of the army surgeon of the late seventeenth and eighteenth centuries. His coat, known as the "justaucorps," is a garment which came to be the habitual costume of the practicing physician of the eighteenth century.

A couple of bearers transporting a patient on a litter, are also well shown in the picture.





## CORRESPONDENCE

To the Editor:

The classical description of angina pectoris was first given by William Heberden (1710–1801) in 1768, but the first description of the symptoms of this interesting disease are recorded by the Earl of Clarendon in his “Memoirs,” where he describes the seizures and sudden death of his father.

This description is of great interest and is here reproduced as given in the “Memoirs”:

Some months after he was married, he went with his Wife to wait upon his Father and Mother at his house at Pirton, to make them sharers in that satisfaction which they had so long desired to see, and in which they took great delight. His Father had long suffered under an indisposition (even before the time his Son could remember) which gave him rather frequent pains than sickness; and gave him cause to be terrified with the expectation of the stone, without being exercised with the present sense of it; but from the time he was fifty years of age, it increased very much, and four or five years before his death, with circumstances scarce heard of before, and the causes whereof are not yet understood by any physician; he was very often, both in the day and the night, forced to make water, seldom in any quantity, because he could not retain it long enough, and in the close of that work, without any sharp pain in those parts, he was still and constantly seized on by so sharp a pain in the left arm, for half a quarter of an hour, or near so much, that the torment made him as pale (whereas he was otherwise of a very sanguine complexion) as if he were dead; and he used to say, “that he had passed the pangs of death, and he should die in one of those fits”; as soon as it was over, which was quickly, he was the cheerfullest man living, eat well such things as he could fancy, walked, slept, digested, conversed with such a promptness and vivacity upon all arguments

(for he was *omnisariam doctus*), as hath been seldom known in a man of his age; but he had the image of death so constantly before him in those continual torments, that for many years before his death he always parted with his son, as to see him no more; and at parting still shewed him his will, discoursing very particularly and very cheerfully of all things he would have performed after his death.

He had for some time before resolved to leave the country, and to spend the remainder of his time in Salisbury, where he had caused a house to be provided for him, both for the Neighborhood of the Cathedral Church, where he could perform his devotions every day, and for the conversation of many of his family who lived there, and not far from it; and especially that he might be buried there, where many of his family and friends lay; and he obliged his Son to accompany him thither before his return to London; and he came to Salisbury on the Friday before Michaelmass Day in the year 1632, and lodged in his own house that night; the next day he was so wholly taken up in receiving visits from his many friends, being a person wonderfully revered in those parts, that he walked very little out of his house. The next morning, being Sunday, he rose very early, and went to two or three churches, and when he returned, which was by eight of the clock, he told his wife and son, “that he had been to look out a place to be buried in, but found none against which he had not some exception, the Cathedral only excepted, where he had made choice of a place near a kinsman of his own name, and had shewed it to the Sexton, whom he had sent for to that purpose, and wished them to see him buried there,” and this with as much composedness of mind as if it had made no impression on him; then went to the Cathedral to sermon and spent the whole day in as cheerful conversation with his friends (saving only the frequent interruptions his infirmity gave him once in two or three hours,

sometimes more, sometimes less) as the man in the most confirmed health could do. Monday was Michaelmass Day, when in the morning he went to visit his Brother Sir Laurence Hyde, who was then making a journey in the service of the King, and from him went to the Church to a sermon, where he found himself a little pressed as he used to be, and therefore thought fit to make what haste he could to his house, and was no sooner come thither into a lower room, than having made water, and the pain in his arm seizing upon him, he fell down dead, without the least motion of any limb. The suddenness of it made it apprehended to be an apoplexy, but there being nothing like convulsions, or the least distortion or alteration in the visage, it is not like to be from that cause, nor could the physicians make any reasonable guess from whence that mortal blow proceeded. He wanted about six weeks of attaining the age of seventy, and was the greatest instance of the felicity of a country life that was seen in that age; having enjoyed a competent, and to him a plentiful fortune, a very great reputation of piety and virtue, and his death being attended with universal lamentation.

JACOB ROSENBLOOM, M.D.,  
Pittsburgh, Pa.

*To the Editor:*

It is now generally accepted that the name "Syphilis" was first used in connection with the disease in 1530, in the celebrated poem by Giralamo Fracastorius of Venice, but the etymology of the name is still uncertain. Apparently it is the opinion of most that this name was coined by the Veronese physician, for it seemed to be the

first use of that particular name. It is interesting to note, however, that a very similar name appears in the works of Procopius—scribe and physician at the time of Justinian, about 535 A.D., in his book on the Gothic War, v, vii, 34, 35. While Belisarius, returning from the conquest of Gelimer and his Vandals in Africa, was advancing upon Sicily, Constantianus was hurrying up the Ionian Gulf to Salona. We may quote from Dewing's "Translation" (iii, 67):

And when he had put in at a place close to the city he disembarked his army on the mainland and himself remained quiet there, but he selected five hundred from the army and setting over them as commander Siphilas, one of his own bodyguards, he commanded them to seize the narrow pass, which as he had been informed was in the outskirts of the city. And this Siphilas did.

There is no other mention of "Siphilas." He probably attended Constantianus from Constantinople where the latter was "Commander of the Royal Grooms."

The similarity of the names of Constantianus' staff officer, and Fracastorius' shepherd may excite our curiosity. It should be remembered that Procopius is one of the best known and most complete historians of this particular period of the decline of the Roman Empire, and might well have appealed to the varied interests of Fracastorius.

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## BOOK REVIEWS

LIFE AND TIMES OF AMBROISE PARÉ [1510-1590]  
With a New Translation of his Apology and an  
Account of his Journeys in Divers Places. By  
Francis R. Packard, M.D. New York: Paul B.  
Hoerber. 1921.

There is, perhaps, no figure in surgical history that has stood out more conspicuously than that of Ambroise Paré. His is one of the names with which every medical student becomes familiar. He did no one great thing that marked an epoch in surgical theory or practice, nor did he inaugurate any new principal or method of operating, and yet he has passed down the centuries to us as one of the outstanding surgical figures of the past. One, who would wonder why this should be, will find the answer in this interesting description of the man and his times and in the translation which Dr. Packard gives of his "Apology and Treatise Containing the Voyages Made into Divers Places."

I should say that Paré owed his fame during his life to the fact that he brought to bear on his surgical practice a wholesome common sense; that he declined to accept the superstitions and dogmas so common in the healing art in the sixteenth century; and that he had the courage to defend his stand on all occasions by word of mouth and in written communications. To us, he is famous because he has left behind him exhaustive and indelible accounts of his work and experiences. Although he was considered by his contemporaries an unlearned man, largely because of his inability to write in Latin, he was a prolific writer in his native tongue, and his large and handsomely illustrated tomes are today found in all large medical libraries. It is to these anatomical and surgical volumes that he owes his lasting fame. He lived in, what

seems to us, a crude civilization and his surgery was in keeping with it, from a modern point of view; but he did much to separate it from the ignorance, dogma and superstition with which it had been surrounded for centuries.

Most medical men, if asked what they knew of Paré, would reply that he introduced the ligation of vessels in surgical operations. All his life he contended for the use of ligatures in amputations instead of the cautery, and defended this practice with the same arguments that anyone might employ today; but he never claimed any originality in this, but said, he was reviving a method forgotten for centuries. That he was not altogether successful is shown by the fact that we find the ligation of vessels in amputations being again revived by another great Frenchman, Desault, nearly two hundred years later.

This book will be found gratifying to those interested in French history, to those who love medical history, to those who care to read the lives of interesting men who lived in interesting times, and to those who enjoy good literature. Therefore, it will prove of interest to laymen and medical men alike and its perusal will entertain and satisfy both.

Medical discussion was quite as acrimonious in the days of Paré as it was a generation ago, and adversaries were attacked in no mincing words and seldom in a spirit of fairness. Paré defending an attack made on the use of the ligature, accuses his opponent with having his sense dulled by "anger and ill-will; because there is nothing which has more power to chase reason from its seat than anger and ill-will." On another occasion in his "Apology" he draws an amusing analogy between his detractors

and a certain country boy who went to Paris to study French.

I will say you are like a young lad of Low Brittany, plump buttocked and thickset, who demanded leave of his father to come to Paris to learn French. When he arrived, the organist of Nôtre Dame found him at the gate of the Palace, and took him in to blow the organ, where he was three years. Finding he could speak French somewhat, he returned to his father telling him that he spoke good French, and, moreover, that he knew how to play on the organ. His father received him very joyfully, because he was so wise in so short a time. He went to the organist of their great church, and prayed him to permit his son to play on the organ, to the end that he might know if his son was as good a master as he said he was. Which the master organist accorded willingly. Coming to the organ he threw himself with a great leap to the bellows. The master organist bade him play and that he would blow for him. Then this good organist said to him that he knew nothing else than how to blow. I believe likewise, *mon petit maistre*, that you know nothing else but to cackle in a chair, but I will play on the keys and make the organs resound, that is to say that I will perform the operations of surgery, that which you know not at all how to do, because you have not budged from your study and the schools, as I have said.

One might almost be allowed to say in this connection that the organ blowers have survived the sixteenth century.

The following account of an occurrence at the siege of Metz by the Germans and Spanish may recall some of the speeches of a more recent German Emperor:

The Duke of Alva represented to the Emperor that every day his soldiers were dying, even to the number of more than two hundred, and that there was little hope of entering the town, seeing the weather and the great number of soldiers who were in it. The Emperor demanded what men they were who were dying, and if they were gentlemen and men of mark. He was answered that they were all poor soldiers. Then he said it was no matter if they did die, comparing them to caterpillars, grass-hoppers and cock-

chafers, which eat the buds and other good things of the earth, and that if they were men of worth they would not be in his camp for six livres a month, and therefore there was no harm if they died.

Anyone interested in gun-shot wounds of the lungs will enjoy Paré's description of such a wound received by Monsieur de Martigues and which he treated in a most practical and careful manner. His description is minute and his reasoning remarkable, though his explanation of the passage of blood in the feces and urine is amusing. His error here was due to the confused ideas then held regarding the circulation of the blood. His distinguished patient died as he said he would, and Paré performed an autopsy which corroborated his opinion as to the character of the injury. The account of this case alone shows what a thorough and rational surgeon Paré was and how much more experience profited him than most of his contemporaries.

In his "Journey to Hesdin" (1553) Paré tells how he was taken prisoner and gained his liberty by successfully treating a leg ulcer in the case of Monsieur de Vaudeville. This discourse on the dressing of leg ulcers might be read with profit by any surgeon today, and it is interesting to note the stress which he lays on the importance of infrequent change of dressing because of its interference with epidermization.

In his "Journey to Bayonne" (1564) Paré describes the case of a Spanish gentleman who "came to be touched by the late King Charles for the King's evil." He found that his patient had a large cervical abscess from which he evacuated "a great quantity of worms," and he then proceeded to remove five salivary calculi from a ranula in the same individual.

In a review of this interesting volume it is difficult to refrain from further quotations from the writings of this remarkable surgeon of the sixteenth century.

Dr. Packard is to be congratulated on the result of his labor, an interesting, accurate and valuable contribution to medical his-

tory. The illustrations have been well chosen and a very useful index concludes the volume.

JOHN H. GIBBON.

THE EVOLUTION OF MODERN MEDICINE. A Series of Lectures Delivered at Yale University on the Silliman Foundation in April, 1913. By Sir William Osler, Bart., M.D., F.R.S. New Haven: Yale University Press. 1921.

No more appropriate tribute to the memory of Osler could be imagined than this volume in which his most typical intellectual attributes can be traced on every page. The lectures which it contains, created a profound impression, and their appearance in printed form was eagerly awaited by all who are interested in the cultured and broader aspects of medical history.

The vast amount of work which Osler performed in a strictly professional capacity during the War, did more than can ever be fully appreciated for the allied cause, by the heartiness with which he devoted himself to welcoming and aiding the medical men from Canada and the United States, who went overseas to serve in the Allied Armies. No medical man of his time had a wider personal acquaintance in his profession throughout the world; but it was not only to those who enjoyed or were honored by such acquaintance that he extended his unbounded hospitality and kindness. Every American or Canadian doctor was sought out and made to feel the magic touch of that great man's kindness, put in the path of seeing what would interest and help him in his new field of work, and braced for his task by the inspiring example of the great leader. Not only were they entertained by Sir

William and Lady Osler at their beautiful home, but Sir William and Lady Osler were at the hospitals or camps in which they worked, and the magic wand of such benignant friendship was the open sesame to many opportunities, professional and social, which were of the greatest benefit to them.

With such memorable preoccupations, the final preparation of these lectures by the author for publication was practically impossible. His untimely death left them without the few necessary final touches. These have been supplied by the loving care of those best qualified by knowledge of the subject and intimate friendship with the author. Fielding H. Garrison, Harvey Cushing, Edward C. Streeter, and Leonard L. Mackall have corrected the proof and verified the citations and references as only they could have done. The result is a brilliant *aperçu* of the history of medicine from its origin to the present day. Needless to say that for completeness, accuracy, and proper proportion it cannot be excelled. It is history as it should be taught, not a dry list of dates and names, but a brilliant narrative of the various epochs which have marked the progress of the science. Important discoveries and men are dealt with at sufficient length, and the reader is carried along by the intense interest of the story without having his attention deflected by the interjection of unimportant or irrelevant matters.

This country has produced two great works on medical history, that of Garrison, the best reference work on the subject, and this of Osler, the most interesting résumé.

FRANCIS R. PACKARD.



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## GUY PATIN AND THE MEDICAL PROFESSION IN PARIS IN THE SEVENTEENTH CENTURY

By FRANCIS R. PACKARD, M. D.

PHILADELPHIA, PA.

(continued)

THE younger son of his friend Belin<sup>1</sup> came to Paris to study medicine and Patin welcomed him to his house where, for a time, he came frequently. Then he remained away. Patin examined him every time he came. After his absence the examination was not satisfactory and Patin advised his father to take him back to Troyes. One can easily divine that the young man's visits to Patin were not an unmixed pleasure, for Patin thought he was indulging in debauchery. Patin's letters about him to his father are very kindly worded. In 1646 young Belin ran away from Paris and joined the army, owing Patin money and what was worse not having returned some books which Patin had lent him. Sometime afterwards young Belin wrote to Patin telling him with whom he had left his books, thereby reconciling himself to him, and later wrote again asking Patin to intercede with his father for him.

<sup>1</sup> This was not the Belin, fils, with whom Patin corresponded. His letters were addressed to Claude Belin II; the lad who studied at Paris was yet another Claude, according to Triaire, who was registered as a physician at Troyes in 1654.

Patin wrote to Belin, fils, on October 17, 1642, an interesting letter of advice as to the reading the young physician should pursue.

Read only Hippocrates, Galen, Aristotle, Fernel, Hollier, Duret, Sylvius, Riolan, Tagault, Joubert, and very little of others, *in quibus Hofmannus ipse dux regit examen*. I am having printed here another book by him, of which I will make you a present in about a month as the author himself has sent it to me. Read the good theses of our school. Look at those which you have of them, to the end that I may send you the best if you have them not. While you have a little leisure, read all that Thomas Erastus has written and especially "De occultis pharmacorum estatibus," and his four volumes "Adversus novam medicinam Paracelsi." Read also every day the "Aphorisms," the "Prognostics," the "Prorrhethics," the "Epidemics or the Coaques" of Hippocrates. On the "Aphorisms," take of all but three commentators; to wit, Heurnius, Hollier, and Galen.

Again he tells young Belin, October 24, 1646:

Read every day some good book, and learn by heart, if you do not know them already all the "Aphorisms" of Hippocrates . . . Do not let any day pass without studying at least eight hours. Read carefully the "Pathology" of Fernel

and the first four books of his "General Method"; add to it the practice of J. Hollier, with the Enarrations of M. Duret, and the "Aphorisms" of Galen, of Hollier, and of Heurnius. The best surgeries<sup>2</sup> are those of J. Tagault and of Gourmelin.

There are three treatises by Galen which you should choose and read something frequently in them, to wit: "De locis affectis; de morborum et symptomatorum causis et differentiis," and his books on the "Method." You will do well to add that which he wrote by way of commentaries on the "Epidemics" of Hippocrates. If you desire another pharmacy than the "Method" of Fernel, read Renodaeus but do not let yourself be carried away in the current of so many promises as do the antidotaries who are destitute of experience. Nevertheless it is necessary to know something of compositions for fear that the apothecaries *artis nostrae scandala et approbria*, can take the bar over you . . . Do not lose your time reading many of the moderns who only make books of our art from lack of practice, and from having too much leisure. Above all flee books on chemistry, *in quorum lectione oleum et perdes*.

It should be noted that, in a certain sense, Patin was not a reactionary. He was an upholder of the Old Greek medicine, that of Hippocrates and Galen, against the pseudo-Greek medicine of the so-called Arabian school. For many centuries the Arabians had captured the preeminence in medical teaching and belief. The works of Avicenna, Avenzoar, Rhazes, and their fellows were the guides in whom the medical profession of Europe founded their faith until well into the sixteenth century, and the Arabic traditions died hard, lingering into the seventeenth century. The new school comprised those who had taken up the new remedies introduced by Basil Valentine,

<sup>2</sup> It will be noticed that throughout his correspondence Patin never recommends the surgery of Paré, except when he himself added anonymously a treatise on fevers to a posthumous edition of Paré's works, but even then he does not refer to any excellence on the part of Paré's own books. Gourmelin was the bitter enemy of Paré and it was in reply to his attacks that Paré wrote his "Apology and Journeys in Divers Places," 1575.

Paracelsus, van Helmont, de Mayern, and many others. As these chemists compounded many formulae and believed implicitly in the efficacy of their various preparations against diseases, Patin could not see any good in their teachings, but only saw in them a new set of therapeutists who, as the Arabs, disregarded the teachings of the Greeks, as to the supreme importance of observation and diagnosis, and the *vix medicatrix natura*, in their desire to invent new remedies, and panacea. Other wiser but less prejudiced physicians than Patin, felt as he did that the salvation of medical practice lay in a return to the Greek tradition. Two men especially did much to promote this end. René Chartier, to whom Guy manifested such bitter enmity, published the works of Hippocrates and Galen in Greek and Latin with annotations, and Foesius published his magnificent Hippocrates in Latin, thus placing the works of the great master within reach of the many physicians who knew Latin but not Greek. There was a great division in Patin's time between the iatromathematical school, represented by Borelli and Sanctorius, and the iatrochemical school whose foremost representatives were van Helmont, Franciscus de le Boë, or Sylvius, and Willis of England. The former held that all bodily actions and functions could be explained by the laws of physics. The iatrochemists held they were due to chemical activities in the organs and tissues. Patin's inclinations were evidently with the iatromathematicians, though he shows but little interest in the many great advances in anatomy which were made during his lifetime. He mentions the writings of men like Steno, Sanctorius, de le Boë, but chiefly praises or dispraises them for their typography, or binding. He lauds highly those authors who adhere to the Hippocratic tradition and condemns virulently those who show any tendency to use the much detested "chemical" remedies, such as antimony. I have referred elsewhere to his views about van Helmont. Harvey's book, the greatest contribution to medical



science of his age, or for that matter any other age, the "De motu cordis" published in 1628, is only referred to in connection with the publication of books attacking his demonstration of the circulation of the blood by Patin's friend, Riolan, or by Primrose of Bordeaux.

Another young medical student for whom Patin acted as mentor at Paris was Noël Falconet, the son of Patin's correspondent André Falconet. Their family contained many distinguished physicians. Charles Falconet was physician to Marguarite de Valois, the first wife of Henry iv. His son André, Guy's correspondent, was born in 1612, and died in 1691. He practiced medicine at Lyon. When his son Noël came to Paris to pursue his studies Patin manifested the same fatherly interest in him as he had shown in young Belin. Young Falconet came to Paris in 1658. When Falconet wrote to Patin that he intended to send him there the latter replied (September 24, 1658), advising him to keep him at home rather than send him to Paris:

Here the youth are marvellously debauched. You would make him a physician? He could study his philosophy at Lyon and later you could send him here for one or two years to study medicine. If your son remains near you, you will be more his master, his health will fortify itself, and he will be more capable of believing me in a year, if I am yet here. When he shall have studied here sometime, it will be necessary to make him pass doctor (get his degree) in a short time, and afterwards retire him near you, when he will follow you to your patients, and learn more in three months than in four years at Montpellier, where I hear that the young men are very debauched. I have many examples of it but take little interest in them. Being at Lyon near you, he can render you a good account of his leisure and at his ease and to his great profit he will read Hippocrates, Galen, Fernel, and Duret . . . If you retain your son at Lyon to study his philosophy, try to make him study Greek as well so that he will know his grammar, the New Testament, Lucian, Galen, and Aristotle. In two years he will be more robust and better able to stand his first winter at Paris,

which is extraordinarily severe for newcomers and to the young, and even then he should be sent here in the month of August so that he may pass the autumn here and become accustomed (acclimated) before the winter comes.

Falconet did not take this sage advice but sent his son to Paris in the autumn of 1658. Falconet asked Patin to take him to live with him as a house-pupil. Patin writes, October 29, 1658:

I have never wished to take anyone *en pension*, although I have been asked to many times, but I can refuse you nothing. You talk to me of the price of board and lodging. I do not know what it is, I demand nothing of you. Tell me only if you wish him to study philosophy and what wine you wish that he should drink. For the rest he shall be nourished in our ordinary fashion, which will suffice a student.

Patin writing to Falconet (January 3, 1659), gives a pleasant picture of his home life and of the hospitality with which he treated his son. He tells him how the boy has enjoyed seeing the beautiful churches of Paris, and of some theological questions which they had discussed together, and how Noël goes frequently to see his son, Charles, at his house in the Rue Saint-Antoine, "where he always sees something beautiful." Charles being a numismatist, had many beautiful pictures and medals.

Often after supper warming ourselves about the fire, I talk to him of the great events of our history, of the deaths of the three kings, Henri II, Henri III, and Henri IV, of the deaths of the two Guises at Blois in 1588, of the Maréchal de Biron, of the Marquis d'Ancre, which I make him read near me in our historians. He says that Jacques Clément and Ravaiillac, who killed Henri III and Henri IV (who I tell him were very good kings) were wicked rascals . . . He has a great wish to go there (to Corneilles) at Easter with my wife, and see all our trees in blossom. We have there five hundred little pear trees without counting the prunes, peaches, apricots, mulberries, and fig trees, and will return from there to Saint-Jean where he will see two hundred cherry trees charged with ripe cherries. For

three years I have had a great wish to take you there, but you have (when here) too much business; he will view them in your place. Our house is near the mountain on which we have a windmill from the top of which one sees the great spire of our church at Beauvais. We will show him that and teach him the topography of all the environs and suburbs of Paris.

When Chereau sought Patin's country house at Cormeilles he found only the cellars remaining, a new mansion having been built. There still existed vestiges of the windmill, and many cherry trees flourished on the grounds.

Guy's second and favorite son Charles "mon Carolus," was evidently a great friend of the young student. Patin writes Falconet somewhat later in the same month that Charles has promised to take Noël on the anxiously desired country trip at Easter.

In August, 1659, Guy tells of taking him walking and showing him the Latin motto on the great clock of the Palais de Justice, advising him to copy it as a good sentiment. Then they went to Cormeilles together, and on their return Patin took him to see the execution "of a thief who was broken on the wheel. They gave us a chamber from the window of which he saw all the ceremony of this mystery of destroying men for their crimes." This was done to inculcate a moral lesson, as Patin adds: "It was not without expatiating to him on the unhappiness of the wicked who resolve to steal and kill to have money for debauchery and gambling." Robert Patin was attending the wife of one of Mazarin's household who was ill at Vincennes, and he took his mother and young Noël Falconet in the carrosse with him when he went there one day in order to show them the chateau. Patin (October 6, 1659) telling the father about this little excursion, adds, "he promises marvels, God give him grace to do well."

Patin (April 6, 1660) writes Falconet:

Since you do not wish your son to go to Lyon for his vacation I am well content. He will go eat of our good cherries and mulberries at Cormeilles, afterwards he will return here to learn

the "Compendium" of Riolan, the father, and the "Enchiridium" of Riolan, the son. After that the winter will come, our public acts (demonstrations) and frequent dissertations will occupy him; you know these are the fundamentals of our profession. Finally he will study the pathology and general method of Fernel, with the "Aphorisms" of Hippocrates and the "Commentaries" of Hollier. I will make him write on paper the good things and practices. I will also take him to see patients where he will learn the *modus agendi*. All this can be done in thirteen or fourteen months and afterwards he can return to Lyon to see you and report to you on his studies.

Possibly young Falconet was aware of Patin's weakness and flattered him somewhat because Guy writes to his father, July 2, 1660:

Noël Falconet acquires every day some degree of wisdom, and will answer well. He greatly loves to be near me and hear me talk. Day before yesterday after dinner, as we were talking together, there came an honest man, with whom I talked about a half-hour, and then took him into my office to give him a prescription. This man, an officer of the king's, looked at him much and when we were alone he said, "that young man there listens to you attentively and wishes to learn. Ah! but if I was in his place I would profit by your presence."

Patin adopted the usual method of instruction, making his pupil learn from books and notes. He writes (August 10, 1660) that he is going to make Noël "learn by heart the first chapters of the 'Compendium' of M. Riolan, the father, and afterwards his commentaries on the physiology of Fernel, with the 'Enchiridium' of the son. It is the way I taught my two sons, and it succeeded there very well."

Apparently young Falconet only stayed temporarily at Patin's house because Guy writes his father, September 21, 1660:

Noël Falconet studies and often asks me good questions. I lent him some books to study but he wished to have his own, so I took him to the Rue Saint-Jacques<sup>3</sup> and bought for him in his pres-

<sup>3</sup> The Rue Saint-Jacques was the great bookshop center of Paris at that time.

ence the works of Riolan, the father, in two volumes in octavo, and the "Enchiridium anatomicum et pathologicum" of the son. I have also promised him a "Perdulcis," and have lent him a Fernel in folio which he likes. He wishes also the "Anthropographia" of M. Riolan, and Hollier in "Aphorismos Hippocrates, Quia Conciliavit Doctrinam Veterum cum Nostra Methodo Parisieni," which is better than that of the Italians.

#### THE PHARMACOPEIA OF PARIS

In a letter to Belin, January 18, 1633, Guy writes of the "Dispensatory" which the Parlement of Paris had ordered to be compiled by the Faculty in 1590. There was no official pharmacopeia or dispensatory (Guy elsewhere refers to it as an *antidotaire*, *guidon des apothicaires*, etc.), in France. The only one in Europe was that of Valerius Cordus published by order of the senate of Nuremberg in 1555, entitled "Dispensatorium pharmacorum omnium quae in usa potissimum sunt."<sup>4</sup> Patin says the French apothecaries used as textbooks the "Antidotaire" of Nicholas Praepositus of Salerno, first printed in 1471; and the "Dispensatorium Galenochemicum" of Renou. (Renodacus, 1608.) The order says it was to be made by twelve members of the Faculty. These having died, those who replaced them allowed the work to lapse, saying that such a publication would only serve to maintain the rascality of the Arabs to the profit of the apothecaries, and Guy<sup>5</sup> quotes the Piètres in support of this view adding that three grains of senna in a glass of water purge as well or more surely than a heap of arabesque compositions. He says the apothecaries do not like him for his practice but that the people are so tired of their barbaresque tyranny and bezorardesque cheating that it is easy to escape from their, the apothecaries, hands. According to Guy there is no better pharmacopeia than "Le Médecin Charitable" reinsegnant la manière de faire et préparer à la maison, avec facilité et peu de frais les

remèdes propres à toutes les maladies selon l'avis du médecin ordinaire," written by Philibert or Philippe Guybert, which was immensely popular. Guy wrote a "traité de la conservation de la santé" which was added to the book in its 17th edition.

The Pharmacopcia of Paris was finally published in 1628, and entitled "Codex medicamentarius seu pharmacopocia parisiensi."

Years afterwards (July 20, 1656) we find him again writing Belin, that there is no better way to defeat the apothecaries than to introduce into families "Le Médecin Charitable" along with a syringe, bouillons and ptisans, made with senna and other emollient herbs.

#### PATIN'S DOMESTIC CIRCLE

On October 10, 1628, Patin married Jeanne de Jeanson, the daughter of a rich wine merchant of Paris, whose mother was a daughter of the celebrated Miron, the provost of the merchants of Paris. Ten children were born of the union, of whom but four attained adult age, namely, Robert, the physician; Charles, the physician and antiquary; Pierre, of whom we only know that he became a Master of Arts in 1649, and that he signed the act of decease of his father in 1672, and François, who became a soldier and was killed in a duel by one of his comrades at Plessis-Bouchard, October 9, 1658. He was buried in the church at Cormeilles the next day. Chereau<sup>6</sup> was shown by the curé at Cormeilles-en-Parisis an old parochial register containing the following entry:

Ce mesme jour, 10 Octobre, 1658, François âgé d'environ dix-neuf ans, fils d'honorable homme Mr. Guy Patin, docteur régent en la Faculté de médecine de Paris, a este inhumé en la chapelle, Nostre Dame: lequel François Patin a este tué le jour précédent, par un sien camarade de guerre, entre Francomille et le Plessis-Bouchard.

As there is no reference to the career or the loss of this son in Patin's letters, it may

<sup>4</sup> Triaire, note on p. 59.

<sup>5</sup> Letter to Belin, in 1643.

<sup>6</sup> *Union Médicale*, 1864, 2d series, xxiii, 401, 449.

be presumed that there was an estrangement between the father and son.

Guy writes to Spon (May 25, 1648) with curious candor about his wife's relatives:

For eight whole days I have been hindered near my mother-in-law, who has been very ill with a pleurisy of which she, Dieu merci, was quit, by means of four bleedings which she has borne very well, in as much as she is nearly eighty years old. The good man is scarcely less, and they are on the eve of leaving me for my part an inheritance of 20,000 crowns, *et vir sapiens non abhorrebit*.

Patin's father-in-law showed no inclination to hasten the fulfilment of his hopes. Two years later (February 4, 1650) Patin writes Spon:

My father-in-law has again obtained some respite from the park (cemetery). In this last attack he was bled eight times from the arms, and each time I made them take nine ounces from him, although he is eighty years old. He is a fat and full-blooded man. He had an inflammation of the lungs with delirium, and, in addition, stone in the kidneys and bladder. After the bleeding I had him well purged four times with senna and syrup of pale roses, by which he has been so marvellously relieved that it is miraculous, and he seems rejuvenated. Many people would not have believed it and would believe rather some fable of a julep cordial. He shows me much contentment but although he is very rich he gives no more than a statue. Old age and avarice are always in good intelligence with one another. Such men resemble pigs which leave all in dying, but are only good for anything after they are dead because they are good for nothing during their life. It is necessary to have patience, I will not neglect to take good care of him. God has given me the means to do without the wealth of others, and live content till now without ever thinking evil.

Patin's mother-in-law died on July 8, 1650, and he wrote to Spon on July 26, 1650, and again on August 8, 1650, describing her last illness, an apoplexy, and rendering her a somewhat piquant last tribute. She was eighty-two years old. Patin was at Paris but hastened to her country place at Corneilles where she was taken ill.

I found the good woman in extremity . . . She had been bled and cupped in awaiting my coming by the surgeon of the place, in such sort that there remained nothing for me to prescribe . . . Finally she died in the evening and was buried in the church there the next day with much ceremony, very useless and superfluous . . . We brought back the good man her husband the next day, who is more decrepit than she was although several years younger . . . There is hope that after his death we will have a great inheritance . . . She was an excellent woman in the care of her household and in the pains which she took with it . . . I can not give myself the pain of weeping much for her seeing she was too old and too often ill . . . Do not weep much for the death of my mother-in-law, she was not worth it. She was a good woman, very rich and avaricious, who feared nothing so much as death which nevertheless seized her quite suddenly at the end, at her beautiful country house at Corneilles. She has gone before where we will go after. Let us try at least to go there with more tranquillity and (better) reputation, and that our children may be thankful to us as good fathers, in meriting from them veritable gratitude.

Patin only refers to his wife in a very casual way throughout the correspondence. He speaks once of her pride in their good fortune as we have seen, but she seems not to have entered much into his thoughts or affairs. He hints at her rather disparagingly in a letter to Spon (October 5, 1657). The latter's wife had visited Patin at Paris and the latter writes:

Mon Dieu, but she is a worthy woman. Ah! but you are fortunate to have one so good, so perfect, and of such good humor. Mine has many very good qualities, but she is sometimes cross and cruel to valets and maids, which are characteristics I hold for nought, but she has them *Jure gentilitio*. Her deceased mother who lived eighty-four years was of the same humor. You have been more fortunate than others. Is it that God mixes in your affairs?

ROBERT PATIN

As already stated, they had four children who attained adult age. Robert, born in

1629, is frequently mentioned in the course of his father's correspondence. Some of Guy's letters are written in his hand, he evidently having acted as his father's secretary. Patin wrote to Spon in May, 1648, telling him of his joy that Robert had received his degree of Bachelor of Medicine at the age of nineteen, the youngest of his class. They quarreled on occasions and there was a serious breach between them at the end of Guy's life. In a letter to Spon in 1649, Guy wrote that Robert could do very well if he wished, but that he did not like to study and was volatile and flighty. He married Catherine Barré in 1660. Writing to Belin, fils, June 2, 1660, he says that two days before, he had married his eldest son to a beautiful girl, who comes of honest people, to whom he had been the physician for twenty-five years. "She is beautiful, she is rich."

Patin gave up his chair of *Professeur du roi* to Robert in 1667. He wrote to Falconet (August 12, 1667):

Yesterday my eldest son, Robert Patin, took possession of the charge of *professeur royal*, for which I had obtained for him the succession. It has come with a good augury, because he celebrated by his harangue his natal day, having been born the eleventh day of August, 1629. I pray God that he may enjoy it a long time. I have raised my children with great care and great expense. I hope they will reap agreeable fruits from it.

Robert died of phthisis on June 1, 1670. Chereau<sup>7</sup> gives the following entry from the register of the church at Cormeilles:

Le deuxieme jour de juin mil six cent soixante et dix a este inhumé dans l'église à la chapelle de la Vierge, Mr. Robert Patin, docteur en la Faculté de médecine de Paris, demeurant à la paroisse de Saint-Germain-de l'Auxerrois à Paris; en presence de Mr. Guy Patin, aussi docteur et professeur du roi, son père, et de Pierre Patin, son frère qui sont signés.

Although Charles was undoubtedly his favorite son, and Robert seems at times to

have caused his father some vexation, nevertheless Patin was sincerely grieved when Robert died at the age of forty-one, but a few years after succeeding to Guy's professorial chair at the Collège Royal. In May, 1670, he refers on several occasions in his correspondence to Robert's illness, which seems to have made a rapid progress towards its end. He sent him, accompanied by his wife and his mother-in-law, out to his country place at Cormeilles in the hope that the change of air would help him. The bereaved father wrote to Falconet (June 4, 1670):

At length, Monsieur, I am desolate, *o me miserum!* my eldest son died, the first of June. God wished to have his soul! he died a good Christian with great regret for his faults, *et cum maxima in Christum fiducia*. I pray God with a good heart that he will preserve you and those who belong to you. It is not necessary to go so soon, one dies soon enough . . . He died at Cormeilles, where he had been taken to have an air more pure than that at Paris. He was buried near his maternal grandmother and his brother François in the chapel of Notre Dame, near to the choir. *Requiescat in pace*. I am so broken down with sorrow at his death, and so fatigued by the journeys which his illness caused me to make, that I am capable of nothing. I pray you to witness my sorrow to M. Spon to whom I have not written of this misfortune because I am so much afflicted, and from whom I do not even ask consolation. It is necessary that I weep all my life for a son so learned . . . He leaves three boys and a little girl, of whom the eldest is nine years, and from whom I hope for some consolation, because he has much esprit, learns well, and is very gentle. We will do that which pleases God, who holds in his hand the good and bad fortune of men.

In 1669, Robert according to Sue had gotten his father's signature to a document which enabled his wife to interfere in the disposition (*affaires*) of Patin's estate after his death, so that it was necessary to sell Guy's library of upwards of 10,000 volumes after his death, in order to satisfy her claims. The old man wrote to Falconet in July, 1671, a few months before his death,

<sup>7</sup> *Union Médicale*, 1864, 2d series, xxiii, 401, 449.

“that the diversity of the studies of his son Charles consoled him in some sort for his absence, but that the maliciousness of Robert confounds him.” “This ingrate has deceived me wickedly, even while dying, that which I would never have thought of an older son in whom I had trusted entirely.”

CHARLES PATIN

Charles Patin was born on February 23, 1633, studied law and became an advocate at Paris in 1648, but in 1654 gave up his legal career and took up that of medicine. Patin tells Belin<sup>8</sup> that at the age of fourteen years he has been examined publicly in Latin and Greek philosophy, before a large audience and got his degree of Master of Arts. “I am going to put him back at his humanities for another year and then make him study law, so that some day he can defend me if the apothecaries undertake to attack me again.” Writing to Garnier, a physician of Lyons, November 2, 1649, Patin says, “My Charles is studying law, but I would like it better if he would employ his time at medicine for which I find him much better suited. I talk to him of it often and he knows more of it than his elder brother; finally, I would prefer that he should be a physician rather than a law-maker, I would teach him many fine observations.” In a letter to Spon in 1649, Guy says he is better poised and loves to study more than his brother Robert, and that he is very learned in “Greek philosophy, geography and law.” His portrait depicts a bright intelligent countenance of much physical charm. Writing to Spon (December 10, 1658) Patin tells him:

It is very cold but we have wood to heat us, added to which it is warm in my study, and we study all the evening tête-à-tête until the hour for supper, and after that we talk around the fire of some agreeable matter, physics, history, or politics. Our Carolus always relates to us something curious. He loves ancient times and talks gaily of them to us, so much so that we often go to bed an hour later than we had resolved to.

<sup>8</sup> Letter, August 18, 1647.

He was apparently on the high road to success. He seems to have been a popular lecturer on anatomy, for Patin (December 16, 1659) writes to Falconet:

My son Charles is teaching anatomy in our school on the cadaver of a woman. There is so great a number of auditors that besides the theatre the court yard was filled. He begins well at twenty-six years, I hope he will finish better. He has many friends who love him. His studies have acquired him many and his courtesy yet more.

On November 24, 1667, Guy wrote to Falconet describing with what éclat Charles had participated in a discussion on the relative merits of Homer and Virgil, and that Lamoignon, the President of the Parliament of Paris and one of the chief men in the city, had shown him marked favor, yet a few months later, in February, 1668, Charles had fled from France and was sentenced to the galleys in contumacy. Patin writes of it to Falconet (March 7, 1668) as follows:

I write lastly to you about the affair of my son in which I had expected that the knowledge of the truth and the succour of my good friends would have remedied it, but hope, according to the sentiment of Seneca, is the dream of a man who ages. Nevertheless, since it is a virtue, I would not abandon it whatever should arise, for it is permitted even to the most wretched to dream and to deceive themselves. Everybody pities him, no one accuses him, and with the exception of some publishers he is loved by everybody. Meanwhile he is absent and we are obliged to resign ourselves in spite of his stoicism. He had always hoped that the justice of the King would be extended to him but our enemies had too much credit. Meanwhile, to soothe our wound, they say, (1) that his process had been made in contumacy, as a man absent, who could not defend himself; (2) that it was by royal and special commission and without right of appeal which is extraordinary and shows more than ever the design they had to condemn him; (3) that most of his judges had received *lettres de cachet* and the recommendation that it was necessary to make an example. But to what could serve this example? Is it that while the Hollanders and others print books of history, and chiefly of our country, of which the authors live

in Paris, one can take from individuals the desire and curiosity to read them? (4) They allege it was a man of great standing who was our secret adversary who moved the wheels and intrigued against us, because they found among his books some volumes in defense of M. Fouquet, and of the enterprise of Gigeri.<sup>9</sup> Why do they not punish the authors of these books? Why do they not prevent their publication in Holland, or their importation into France? All these books, and others like them, have been sold at Paris by the booksellers at the Palais and in the Rue Saint Jacques. It excites the desire to see these books that one would suppress and hide with so much rigor . . . They have named three books, to wit, one full of impiety, a Huguenot book entitled, "L'Anatomic de la Messe," by Pierre Dumoulin, minister of Charenton; as if the Inquisition was in France! It was sold for six sous. Paris is full of such books, and there is scarcely a library where one cannot find them, even with the monks. There is liberty of conscience in France and the booksellers sell them every day. It is even permitted to a man to change his religion and become a Huguenot, if he wishes; and it will not be allowed a studious man to have a book of this sort; also he had only a single copy. The second was a book, which they said was contrary to the service of the King. It was the "Bouclier d'État," which is sold publicly at the Palais, and to which they are printing here two answers. The third is "l'Histoire galante de la Cour," which consists of little libels more worthy of contempt than anger. I think these three books are only a pretext, and that there is some secret enemy who is angry at my son, and the cause of our misfortune. I hope that God, time, and philosophy will deliver us and put us at rest, and in waiting, Lord God, give us patience. It is necessary in this world to be either the anvil or the hammer. I have never had great care, but here it is all of a sudden, when I am sixty-seven years old. It is necessary to bear patiently that for which there is no remedy. Finally God wills it thus.

Patin apparently did not think that Colbert was responsible for the persecution of his son, for when Colbert was ill a few years

<sup>9</sup> Patin evidently hints at Colbert in these remarks. It is well known with what animosity Colbert pursued all those who sought to uphold the cause of his predecessor.

later, Patin writes to Falconet, June 2, 1671:

For me I have a particular interest in his recovery, besides that he has often spoken well of me, and that he has raised my salary as royal professor, it is that I expect from it the liberty of my son Carolus, for although many persons have



GUY PATIN FROM "LETTRES CHOISIES." PARIS: JEAN PETIT, 1685.

believed that it was he who had him persecuted, he has said several times, even of his own will (*même de son propre mouvement*), that it was not he. Thus we are reduced to knowing neither the accusation nor the accuser. But, as I have told you, I have good hope that this great minister will contribute to our happiness, in spite of the solicitations of our enemies.

On August 14, 1668, confirming a decree of the Châtelet previously issued March 25, 1668, Charles had been summoned before a special commission, for trial without right

of appeal. The only charge formulated against him was that certain prohibited books had been found in his possession: "l'Anatomie de la Messe"; the "Memoire" published by Fouquet in his defense; and Bussy-Rabutin's "Histoire galante de la Cour," books which as his father says, were sold publicly by the booksellers of Paris. Guy Patin writes, "I think these three books are only a pretext and that there is some hidden party who is angry with my son and who is the cause of his misfortune." Bayle,<sup>10</sup> after quoting Guy Patin's explanations of his son's disgrace, says that they do not touch on the cause which was rumored about Paris as the true reason for his exile. It was said that Charles had been sent to Holland to buy up all the copies of a scandalous book, "Les Amours du Palais Royal," and burn them at once, not sparing a single copy. He was given this commission by a "Grand Prince," who promised to recompense him. Charles was said to have purchased the books but instead of destroying them he was accused of bringing them into France where they would, of course, be in great demand. Pic conjectures, without giving any very solid reasons, that he may have become involved in a love affair with some lady upon whom the King had bestowed his affections. He bases his supposition on the facts that Colbert, the all powerful minister, had taken an active, though secret part in his conviction, the majority of the judges having received *lettres de cachet*, ordering them to find him guilty, that Charles Patin never attempted even while living in security in foreign parts, to justify himself, and that in 1681 he was offered a full pardon by Louis XIV. Charles refused the proffered amnesty, saying "of what pardon would they speak to me? I did not know my crime."

Pic recalls that Colbert had interested himself in the King's love affairs before, and that the trial of Charles Patin coincided in date with the advent to power over the King's affections of Madame de Montespan

<sup>10</sup> Dictionnaire historique et critique—Art. Patin.

(1669), and that the pardon had been offered to him, without solicitation at the epoch of her displacement by Madame de Maintenon (1681). He thus accounts for the personal interest taken by Colbert and his royal master in the affair.

There does not seem much to support the idea that the exile of Charles Patin may have been due to a love affair. His wife followed him in his exile and apparently they lived with one another until parted by death, in perfect accord. There is another explanation for his persecution which seems more probable. In 1665, Denis de Sallo founded the *Journal des Savants*. Patin writes to Falconet (March 20, 1665):

I do not know if you have received a certain kind of gazette, which they call the *Journal des Savants*, in which an author who complained against a little article of my son Charles, on the deal which was made here last year for the Swiss, is answered by him. I have sent you his answer, which is wise and modest. The new *Gazette* replied ignorantly and extravagantly, to which there had not lacked a strong and sharp response with good reasons, if they had not prayed Charles to suspend his reply, and menaced him with a *lettre de cachet*. The truth is that M. Colbert takes under his protection the authors of this journal, which is attributed to M. de Sallo, counsellor in Parlement, to M., the Abbé de Bourze, to M. de Comberville, to M. Chapelain, etc., insomuch that Carolus is advised to delay his response, and even, by the advice of the premier president, who has also requested it (they say for a particular reason, to wit, that he does not stand well with M. Colbert since the process of M. Fouquet) . . . The republic of letters is for us, but M. Colbert is against, and if my son defends himself, they say they will send him to the Bastille. It would be better not to write.

This was not the only time that Charles Patin had been in trouble with the police for having in his possession contraband books. Pic's friend, M. Paul Delalain, discovered in the Bibliothèque Nationale the dossier of Charles Patin containing his sentence in 1668. Attached to it was the report of the arrest of both Charles and his father for an attempt to smuggle contraband



books into Paris. They were bringing them into the city from Bourges, when their carriage was stopped and the two doctors apprehended and taken to the douane. Among the books were ninety-two copies of Rabelais, the "Lettres Provinciales," the *Journal des Savants*, "l'Histoire des Amours d'Henri iv," "Rome pleurante," "Le Roman comique de Scarron," and fifty copies of "l'Histoire amoureuse des Gaules." The latter, Guy Patin attempted to dispose of by throwing them down a latrine, but he was caught by the customs officers, and the books recovered by scavengers. There is no record of any punishment meted out for this offence beyond confiscation of the books.

In 1666, Guy and Charles Patin were arrested for having in their possession contraband books.

Again in 1667, the elder Patin was in trouble for the same cause. Fifty copies of the works of Hofmann (Hofmann's "Opera Omnia") were found in his possession, and confiscated. "They were destined, not for presents, as he claims, but to be sold, according to his custom." After escaping from France, Charles Patin traveled and lived in England, Germany, Holland, Switzerland and Italy. He held several professional chairs at Padua, among them those of surgery and practice.

Patin was cheered by letters from Charles, showing that he had been well received in his wanderings, and was not greatly depressed by his banishment. Thus Patin writes to Falconet (September 13, 1668):

I have had good letters from Germany. By them I learn that my dear son, Charles, diverts himself there in traveling, and visiting worthy men. He has lately been at Frankfort, where our good friend M. Scheffer received him very well, also M. Lotichius, M. Horstius, and other men of letters. He writes me that he studies, and that he does not afflict himself too much at quitting his country. *Securus sine crimine vivit*. The Elector Palatine wished him well, and invited him to dinner twice a week, and asked him to all the amusements of the Court. He has even offered to write to the King on his behalf, but Charles is a Stoic, who says he does not wish to

owe his return to anyone but the King. He says he is a wise Prince. They have persecuted him in his name, but that he will cause him to return when he wishes. If that does not happen, I will say with Cayas and others, *O ingrata patria, non babebis ossa mea!* I have much more wish to see him than he has to return. My God, when shall it be?

Again Patin writes Falconet (April 26, 1669):

My Carolus has left Heidelberg and has gone to see the Duke of Wurtemberg, who has demanded his medical aid. He has already made another journey there, with which he was well content, as the Prince was also with him, sending him away with handsome presents, and charging him to return soon to see him. He writes me that if he loved money he would have the occasion to be satisfied, and that besides his profession in which they honor him much (you know that which is the honorarium of physicians and lawyers), these princes love greatly to play at tric-trac with him and they willingly lose. He says they are the honestest players and best men in the world.

Charles published a little book of travels<sup>11</sup> which contains nothing indicative of any great erudition on the part of the author, reading more like the jottings of an idle dilettante than a work written by a learned antiquary.

In 1682, Charles Patin published a volume of "The Lives and Pictures of the Professors at the University of Padua,"<sup>12</sup> including his own life and portrait as Professor of surgery among them. This autobiographic sketch, however, is disappointing in that it throws no light on the reason for his exile. He relates with complacency the many honors he has received since leaving his native land, and expresses the happiness which filled his life at the time he wrote. He refers with affectionate respect to his father.

Patin writes Falconet (June 19, 1663) of

<sup>11</sup> Relations historique et curieuses de voyages en Allemagne, Angleterre, Hollande, Bohème, Suisse, par Charles Patin, Docteur en Médecin de la Faculté de Paris. Amsterdam, 1695.

<sup>12</sup> Lyceum Patavinum. Sive Icones et Vitae Professori. Patavii, MDCLXXXII. *Publice Docentium*.

Charles Patin's marriage, speaking as though he were doubtful of its success:

I have married my son Carolus, aged thirty years, to the daughter of my colleague, M. P. Mommets. Her name is Madelon, and she is nineteen years less four months old. A beautiful girl, well born and well brought up by a good father and a wise mother, *Utinam omnia fauste succedant*. It is a bargain of which I am doubtful as to the success; *uxori atque viro est fatalis*.

LYCEVM  
PATAVINVM,

Sive  
ICONES ET VITÆ  
PROFESSORVM,  
PATAVII, MDCLXXIII. PVBLICE DOCENTIVM.

PARS PRIOR,  
Theologos, Philosophos & Medicos complectens.  
PER  
CAROLVM PATINVM, EQ. D. M.  
DOCTOREM MEDICVM PARISIENSËM,  
Præmarium Chirurgiæ Professore.



PATAVII, MDCLXXIII.

Typis Petri Mariæ Frambotti. *Superiorum permissu*.  
TITLE PAGE OF "LYCEVM PATAVINVM" BY CHARLES PATIN,  
1682.

His wife and daughters were very learned and all published books on various subjects. Charles died at Padua on October 2, 1692.

PATIN AND THE BOOK TRADE

From the above it may be seen that Guy Patin though holding his head so high as a *docteur-régent*, was also a dealer in books to a very considerable extent. These commercial doings crop out with great frequency in his lectures. Whether he dealt in books to increase his income is doubtful. It would appear more probable that he was so intense

a bibliophile that he could not refrain from handling them, whether in his library or in buying or selling. He seems to have enjoyed peculiar facilities for importing them and his activity in bringing foreign books into France was beneficent. He writes to Spon (September 17, 1649) about the efforts made by the syndic of the publishers to close the bookshops on the Pont Neuf. There were more than fifty of them, the privilege of opening them being sold by footmen of the King. Patin says they bought books stolen by children and servants and were a great annoyance to the regular trade. On several occasions Patin refers with commendation to the books of Primrose, a physician of Scotch extraction, who practiced at Bordeaux. His two chief books were "Exercitationes et anima versiones in librum, et motu cordis et circulatione sanguinis, adversus Guillelmum Harvaem" (1630), and "de Vulgi erroribus in medicina." Primrose was one of the most virulent and obstinate opponents of Harvey.

Gaspard, or Caspar Hofmann of Nuremberg, another bitter opponent of Harvey's demonstration, was greatly admired by Patin, who published an edition of some of his works. Patin refers to him very frequently in terms of extravagant praise. When Harvey was traveling in Germany as physician to the Duke of Arundel he visited Hofmann at Nuremberg for the purpose of demonstrating to him the correctness of his views. Vesling, whom Patin also mentions with much admiration was yet another opponent of Harvey, basing his objections on the different color of the blood in the arteries from that in the veins.

It is curious to witness such an obsession on the part of a man whose intellect was as keen as that of Patin. As a professor of anatomy, we know that he performed dissections, or at least lectured on bodies which had been dissected by his prosector for him. He was not however an original worker, probably contenting himself with reading anatomy to his students either from Galen or some contemporary whom he admired,

such as Riolan, and not troubling himself to follow up on the body any of the wonderful anatomical discoveries of men like Harvey, Pecquet or Bartholin, to ascertain whether they were true or not.

#### PATIN'S HEALTH

Guy possessed good health. The physicians of his time made their professional visits on a mule or on horse-back. Patin apparently did the latter; at least he writes to Spon (January 8, 1650) "that he had been out every day on horse-back," and there is no mention in his correspondence of his ever having suffered any very serious illness during the seventy-two years of his life. The only indispositions he mentions are the following: Writing to Spon (March 10, 1648) he tells him that he has been ill with a bad cold that finally required him to take to his bed and undergo seven bloodlettings; in another letter (March 7, 1651) he tells him that some years before, after drinking polluted water, he had passed blood and pus in his urine but that it had soon cleared up.

He writes Belin (May 10, 1653) telling him that he had always been a very moderate drinker and ascribes to this the fact that he does not yet need glasses, "notwithstanding my age and my vigils."

Patin was consistent in applying his therapeutic views to himself when he fell ill. He tells Falconet (June, 1661):

I had a bad toothache yesterday, which obliged me to have myself bled from the same side (as the pain). The pain stopped all at once, as by a kind of enchantment, and I slept all night. This morning the pain began a little again. I had the other arm bled and was cured right away. I am, thank God, without pain. I think that these two bleedings will serve to enable me to purge myself surely, which I shall do next week, if I have the leisure for it.

Although he followed the ancient Greek and Latin medical authorities with blind faith, it is interesting to note Patin's freedom from belief in some of the traditional remedies of his day.

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Thus he writes to Belin, fils (October 18, 1631), at a time when a pestilential disease prevailed in Paris, that he does not believe that theriaca, mithridates, alkermes, hyacinth, bezoar, or the unicorn's horn are of



CHARLES PATIN  
(1633-1693)

any use, because he does not think they possess any of the occult properties attributed to them.<sup>13</sup>

<sup>13</sup>Theriaca, or treacle as his English contemporaries termed it, was regarded as an universal panacea against the bite of any venomous animal. It contained some sixty odd ingredients, among them bitumen, turpentine, saffron, and vipers. It was invented by Andromachus, one of Nero's physicians, and was in great vogue even as late as the eighteenth century. Evelyn in 1646 records in his "Diary" that when in Venice he went to see its preparation, "the making an extraordinary ceremony whereof I had been curious to observe, for it is extremely pompous and worth seeing." In both France and Italy, its manufacture was a long process attended with much ceremonial and many curious observances. The London Pharmacopeia for 1746 still retained it as official, as it also did mithridatum, an universal

Patin writes to Spon (February 4, 1650):

The reputation of theriaca is without effect and without foundation, it comes only from the apothecaries who do all they can to persuade people to use compositions and would take from them if they could the knowledge and use of simple remedies which are more useful. If I were bitten by a venomous animal I would not trust in theriaca, nor in any cardiac, external or internal, of the shops. I would scarify the wound deeply, and apply to it powerful attractives, and only have myself bled for the pain, fever, or plethora. But by good fortune there are scarcely any venomous animals in France. In recompense we have Italian favorites, partisans, many charlatans, and much antimony.

#### THE PLAGUE AND SYPHILIS

The pest which Patin writes of in the letter above quoted was bubonic plague, as he says of it:

There have been here since Easter a great quantity of malignant fevers, which have been so many hidden plagues, but one only names it the pest when one has seen buboes or charbons supervene, yet these diseases are not less contagious than the plague.

He complains that although there are two hospitals, Saint Louis and Saint Marçeau, in Paris, to which the plague-stricken were sent, there is no physician attached to

antidote supposed to have been invented by Mithridates, King of Pontus, and made of nearly as many ingredients as theriaca. Alkermes or kermes was, as its name would indicate, a product of Arabic pharmacy. It was made originally from cocoons which were found on a species of oak tree. It was especially famous in the form of the confection of alkermes. Hyacinth was not made of the plant of similar name, but from precious stones, especially amethysts. The confection of hyacinth contained many other ingredients, such as other stones, musk, myrrh, camphor and various herbs. Bezoar stones were concretions found in the gastrointestinal tracts of various animals, especially goats, llamas, and antelopes. Its use came from the Arabs and it was supposed to be an universal antidote for all poisons. Unicorn's horn was generally made from the tusks of elephants or narwhals, although supposed to be derived from the fabulous unicorn. Paré had fully exposed the uselessness of bezoar and unicorn's horn, though Patin never refers to his memorable treatise.

either hospital to look after the patients. Patin says that he had seen more than 60 cases of plague himself, and that there was not a physician of the Faculté who could say that since the month of July he had not "seen, found or discovered nearly every day someone who was not a victim of it, because it has been very common here."

He tells Belin (October 2, 1631) of the heroic action of a physician named Malmédy who in the plague visitation in 1582 and 1583 voluntarily shut himself in the plague hospital without pay. Patin adds somewhat spitefully, that nevertheless he made a great deal of money in the hospital and lived to enjoy his gains for twenty years after, when he died of "pure old age."

Patin in a letter to Spon (January 8, 1650) makes a statement which goes far towards confirming the views of those who hold that syphilis was not imported into Europe from America, but that it existed in the Old World, but was regarded as a form of leprosy. During the medieval period and down to the beginning of the sixteenth century, leprosy was so prevalent throughout Europe that most communities of any size had leper hospitals to provide for its victims. At the present time leprosy is practically extinct in Europe, but syphilis is universally prevalent. Patin writes: "The late Simon Piètre, older brother of Nicolas Piètre, two incomparable men, said that before Charles VIII in France, the syphilitics were confounded with the lepers, of which today our hospitals are for the most part empty."

Patin refers again to this confusion in the diagnosis between syphilis and leprosy in writing to Spon (May 11, 1655):

It is not long since I was shown a patient, an Auvergnat, who was suspected of leprosy, perhaps because his family had the reputation to have had it among them, because there was no mark on his person. This made me think of some lepers here. In other times there was a hospital here dedicated to receive them in the Faubourg Saint-Denis, which is today occupied by the priests of the mission of Father Vincent (Saint Vincent de Paul). One sees them neither in

Normandy, Picardy, nor Champagne, although in all these provinces there are leper hospitals which have been converted into pest hospitals, *Propterrarritatem elephantiorum*. In other times they took syphilitics for lepers, *qui per inscitiam medicorum et sæculi barbariem, nec distinguebantur ab elephanticis, nec sanabantur*. Nevertheless there are still lepers in Provence, Languedoc, and Poitou. François Valleriola and Guilbert Ader assert it. Are there any in the Lyonnais? Have you seen any or recognized any as such? Have you in your city of Lyon a hospital for them? Have you seen them at Montpellier, or in any other places in Languedoc when you have been there?

#### OPPOSITION TO LAUDANUM

The introduction of the preparations of opium into practice undoubtedly led to considerable abuse of it at the hands of the incautious or unscrupulous. Its beneficent properties caused it to be hailed by many as the long sought panacea. The followers of Paracelsus were especially active in prescribing it often in harmfully large doses. It should be stated that the preparation which Paracelsus himself termed laudanum and recommended so highly, was not the tincture of opium to which we give that name today. The "laudanum" of Paracelsus was a gum or balsam called "ladanon," which was given in pill form. Patin, along with many of his contemporaries and those who came later, confused the terms and thought the Paracelsan remedy was an opiate. Patin, with his usual combination of conservatism and prejudice, condemned laudanum and all other preparations of opium with the utmost vehemence. Thus Michel Potier, in his works published in 1645, having commended opium and some of the "chemical remedies," Patin attacks him bitterly in a letter to Spon (January 20, 1645):

I have heard said by M. Moreau, who was an Angevin like this Potier, that he was a great charlatan and a great rascal, who mixed in our profession, only showing himself on the stage to sell his wares better. He left the kingdom and made his way to Italy. Likewise he made himself

in his book the Aristarch and censor of physicians. To hear him talk, it was he only that had knowledge and understanding. That which makes me suspect all he does is that he talks too often of his diaphoretic gold, of his opium or laudanum, and condemns too much the other remedies from which the people every day derived solace. His book is a continual censure of ordinary medical practice. Nevertheless there will always be fools who will admire him, and honest men will not gain any profit from him. This book will become ridiculous, or else it will render ridiculous all the profession of which we are part, you and I.



FRONTISPIECE OF PHILIBERT GUYBERT'S "LE MÉDECIN CHARITABLE." PARIS: J. JOST, 1633.

#### OPPOSITION TO CINCHONA

Patin does not condemn quinine, which had been introduced into France under the name of Jesuits' bark, as bitterly as he does antimony and opium, but, being a novelty, he cannot approve it. He writes to Spon (January 30, 1654) that he had dined with Gassendi and had met at his table a M. Montmor, *maitre des requêtes*. This gentleman was a great collector of books and Patin was greatly delighted with him,

especially when he intimated that he intended to employ him as his physician, but he adds that he has his doubts as to their according well together:

M. Montmor has always loved chemistry and is not yet undeceived as regards antimony, and his wife also leans to these heresies; she is also for the Jesuits' powder, of which I have never seen in Paris any good effect.

On March 10, 1654, he writes Spon that the wife of de Gorris, one of his colleagues, had been found dead in her bed. She was sixty years old; "all winter she had suffered from a triple quartan fever, to cure which she had taken cinchona by which she thought she was cured. I think that this loyolitic powder (*poudre loyolitique*) shortened her days."

Imagine Patin thinking well of anything emanating from the Jesuits; could aught good come out of Nazareth? Patin writes to Falconet (December 30, 1653):

This powder of cinchona has not any credit here. Fools run after it because it is sold at a very high price, but having proved ineffective it is mocked at now. I had treated a girl for a quartan fever so successfully that the access of fever was reduced to two hours only. Her mother, impatient, having heard the rumor made by this Jesuits' powder, purchased one dose for forty francs in which she had great hope because of the high price. The first access after this dose lasted seventeen hours, and was much more violent than any which she had had before. Today the mother has great fear of the fever of her daughter and much regret for her money.

The enlargement of the spleen, so frequently associated with malarial fevers, was recognized by Patin and his contemporaries, but the following extract from a letter to Falconet (September 21, 1661) will serve to illustrate the errors into which they fell because of the humoristic doctrine which dominated their views:

But apropos of quinquina, it performs no miracle here. When the body is well cleaned out by bleedings and purgatives, it is able by its (own) heat to absolve or absorb the remainder of the morbid matter, at least for that purpose

it is only necessary to heat it. Even those in whom the fever has ceased are not entirely well, because it returns unless they are well purged. The obstinacy and duration of these quartan fevers comes from the bad, almost carcinomatous condition of the spleen, which occupies its very substance. I have never given cinchona. I have seen those who have trusted to it too much hydropic. I would not purge at the access of a quartan fever, but I purge often at the end of an access, with much success. Even in great fever, I sometimes make them swallow four great glasses of laxative ptisan, containing senna. That makes the bowels open well, carries off a portion of the conjoined cause, and prevents the annoyance of the great sweats, of which they complain so often. As to bleeding at the commencement of the access, I never do it. It would be both imprudent and temerarious to do so.

#### ORVIETAN

Orvietan was a quack remedy much in vogue in Patin's time.

Patin writes Falconet (January 6, 1654) of a curious episode in the Faculté de Médecine in regard to it. He begins with a denunciation of de Gorris, a physician with a very large practice in Paris:

All his life he has been of the evil party of the chemists, the charlatans, the Gazetteer, the foreigners, the men with secrets against gout, epilepsy and quartan fever; a very unfortunate practitioner who has killed many with the experiments he would make: Who knew truly much Greek and Latin, but who applied his knowledge badly, who never had the courage to resist the temptation of gold for any rascality or corruption of his profession. In 1647, a merchant of Orvieto, to sell his drug better, addressed himself to a man of honor, then Dean of our Faculté, M. Perreau, to obtain through him by means of a good sum of money which he offered him, the approbation of the Faculté for his opiate. He refused it with much dignity. The charlatan then addressed himself to de Gorris, who received from him a considerable present and promised him to get some doctors to sign an approbation of his medicament which he sold on the Pont Neuf, which he caused to be done by a dozen of others who were hungry for money. These were the two Chartiers, Guénault,

le Soubs, Rainssant, Beurains, Pijart, du Clédât, des Fougerais, Renaudot, and Mauvilain. The Italian impostor, not content with such signatures, sought to have the approbation of the entire Faculté, and pressed the new Dean, who was M. Piètre, my predecessor, to make him give it to him, in the hope which he had to make a better sale of his drug if he should obtain that which he desired. The new Dean learned from the charlatan's own mouth all that de Gorris had done to him, and when he had assembled the whole Faculté, and recited the affair against these twelve Messieurs, they, having acknowledged their weakness and bad action, were expelled from the Faculté by a solemn decree. However they were reestablished on certain conditions, notably that of demanding pardon from the company in full assembly. No matter what they have been able to do since, the stain remains on them.

#### PATIN'S VIEWS ON INFANT FEEDING

Patin was a great believer in the nourishment of children by the maternal milk instead of on pap, which, as compounded in France at that time, was a mixture of wheat and flour, called *bouillie*. He thought that hand-fed babies were more subject to smallpox even in later life, and attributed his own exemption from that disease to the fact that he had been a breast-fed baby. He also thought that whooping cough, which seems to have been as prevalent in France in his time as it is in our own, was predisposed to or aggravated by the artificial feeding of children. He describes whooping cough in one of his own children, a little boy of three months, who had been taken out in very cold weather by his nurse. The illness lasted five weeks with paroxysms of cough lasting from a half-hour to three quarters, during which time Guy thought him in danger of suffocation. "Two blood-lettings, enemata, good breast milk, abstinence from pap, and keeping warm are the great remedies."

Patin's particular objection to the use of pap was that it was "a coarse food which causes much stickiness and obstination in the stomach and abdomen, and which predisposes to illness of a putrid nature." He adds:

I hold pap a bad food, as much because of the flour which is not often sufficiently good, as because of the milk of the cow, which is far from the goodness of that of the breasts, which is taken entirely fresh and new, hot and spirituous by the child, whereas that of the cow is extremely weak in comparison, joined to which it is a gross, viscous food which makes a stickiness in the stomach of the child, and much obstination in its belly.<sup>14</sup>

He also says that smallpox was unknown to the ancient Greeks, and that children got no pap in their time.

In Patin's time human milk was much esteemed not only as a diet for children but also under certain circumstances for adults. Patin (April 1, 1650) writes to Spon that d'Esmerly,<sup>15</sup> the Superintendent of the Finances is very ill, and that Valot his physician has put him on a purely milk diet. "In the morning he drinks ass's milk, at midday cow's milk, in the evening goat's milk, and in between the milk of a woman." The Duke of Alva, one of the greatest and cruellest generals of his time, in his old age had two wet nurses by whom he was nourished, and Dr. John Caius, the famous English physician who founded Gonville and Caius College at Oxford, was, when senile, fed in the same manner. Shakespeare hints at this in the "Merry Wives of Windsor," when the Dr. Caius of the play has as his nurse, Dame Quickly.

Patin advocated the drinking of ass's milk, a measure much in vogue in his time, in cases of debility or prolonged convalescence. When Falconet's wife was recovering from a serious illness, Patin writes (April 8, 1664), urging him to make her drink it. He quotes instances to show Falconet that drinking ass's milk is conducive to longevity:

My mother-in-law, who died aged eighty-four years of an apoplexy, had drunk it for sixty years. The mother of M. du Laurens, the coun-

<sup>14</sup> Letter to Spon, January, 1644.

<sup>15</sup> A creature of Mazarin's, his real name was Particelli. He was finally disgraced and replaced by Fouquet.

cillor, died last year, aged eighty-seven years, having used it ever since she was twenty-two years of age. Her sister-in-law, the widow of André du Laurens, the anatomist, had done the same and lived eighty-five years. It works marvels here, particularly in the spring and autumn, notably when taken with precaution. I only give it when the intestines are clean and prepared by good and gentle purgations.

#### VENESECTION IN INFANCY AND OLD AGE

It is hardly to be believed, but Patin asserts to Spon (August 17, 1658):

We also bleed very fortunately children of two or three months, without any inconvenience. I can show more than two hundred of them bled at this early age. There is not a woman in Paris who does not think well of bleeding and that her child should be bled in the fever of smallpox, scarlet fever (*rougeole*) or teething, or in convulsions, so much have they seen of it by experience when they had them.

Patin writes Falconet (January 19, 1663):

I bled another time an infant of three days for an erysipelas of the throat. He is still living, aged thirty-five years, a captain at Dunkirk, the son of Mademoiselle Choart.<sup>16</sup> I bled the son of M. Lambert de Thorigny the sixty-second day of his life, who is today ten years old. The application of great remedies at so tender an age demands much judgment.

The aged were also suitable subjects for profuse bleeding. Patin writes to Falconet (May 27, 1659):

Our good M. Baralis has been bled eleven times in six days, which has prevented suffocation . . . But he is in great danger of not being able to escape it. A continued fever, a bad lung besieged with an inflammation, eighty-four years, are all signs which leave me with a gloomy suspicion. Oh! but it is a pity. He knows well his Hippocrates and Galen, and practiced medicine as a man of honor all his life.

#### THE USE OF ANIMAL REMEDIES

It is odd that Patin neither recommends nor condemns a class of medicines much in vogue in his time, namely those composed of animals or their secretions or excretions.

<sup>16</sup> It was quite customary at that time to designate a married woman as mademoiselle.

Dr. Minivelle<sup>17</sup> gives the following list of those which the apothecary should keep in his shop, according to the "Pharmacopoeia" of Jean de Renou, published first in 1608 and again in 1637.

// One uses many entire animals, such as cantharides, centipedes, worms, lizards, ants, vipers, scorpions, frogs, crayfish, leeches and many small birds. As to the parts (of animals) our physicians hold assuredly and truly that they are endowed with many and admirable virtues, among which parts we can put the skull or the head of a man dead but not yet buried; the bone which is in the heart of a deer, the brain of antelopes, swallows and hares; the teeth (tusks) of the boar and the elephant, the heart of the frog; the lung of the fox, the liver of the goat, the intestines of the wolf; the genitalia of the deer; the skin and the slough of the snake. Item: fat of man, of the pig, of the goose, of sheep, of the duck, the rabbit, the kid, the eel, and the snake; the marrow of the deer, the calf and the goat; human blood, the blood of the pigeon, and of the goat; all sorts of milk and that which is made from it, as butter and cheese; the horns of the deer, and antelope and the unicorn; the toe nails of the eland, the goat and the buffalo; the shells of oysters and the pearls from within them, and the scales of many fish. Finally, since the excrements of the said animals have also their particular virtues, it is not unfitting for the pharmacist to keep them in his shop, especially the dung of the goat, dog, swan, peacock, pigeon, muskrat, civet, and the hair of certain animals.

#### SOME OF PATIN'S CONTRIBUTIONS TO LITERATURE

Patin edited a collection of discourses or harangues by Jean Passerat, professor of eloquence and Latin poetry in the Collège Royal, published in 1637, with a dedication to Charles Guillemeau, written by Patin. The edition of Fernel's "Pathology" (*Fernelli Pathologiae*), published at Paris in 1638, was prefaced by a dedication three pages long by Patin. Patin sometimes exhausts even his hyperboles in praises of Fernel. As a sample he writes to Falconet (March 29, 1656):

<sup>17</sup> La Médecine au temps d'Henri iv.



I am ravished that you should so greatly love our Fernel. That man is one of my saints, with Galen and the late M. Piètre. I told Madame de Riaut, the mother of your beautiful nun, that I would hold it a greater glory to be descended from Fernel than to be King of Scotland, or related to the Emperor of Constantinople. Fernel was good, wise and learned . . . never any prince did so much good to the world as Fernel has done.

Fernel, physician to Henri II, was a truly great man. He was interested in astronomy, and in 1527, he tried to measure the earth's size by observing the height of the pole at Paris; then proceeding northward until its elevation was increased exactly one degree, and ascertaining the distance between the stations by the revolutions of the wheels of his carriage, he made it 24,480 Italian miles in circumference.

About the middle of the seventeenth century a physician of Paris, L. Martin, published a translation of "The Regimen Sanitatis of Salerno" in burlesque verse, dedicated to Scarron. Some bibliographers have advanced that the real translator was Patin, but Réveillé-Parise thinks there is no proof of the assertion. An edition of this translation, published by Henault at Paris in 1651, is dedicated to Patin. Patin frequently refers to this translation, and in a letter to Spon (October 19, 1649) tells him that Martin, the author of the translation, has shown him some of the pages of the proposed work and intends to dedicate it to him.

Patin contributed considerably to various editions of the works of Jean Riolan, fils, adding tables and aiding in their correction for the press, and Triaire thinks it probable that he retouched his famous "Curieuses recherches sur les Écoles en Médecine de Paris et de Montpellier," published at Paris in 1651. Riolan states himself, his indebtedness to Patin for aid in his "Enchiridium anatomicum et pathologicum," 1648, which he dedicated to Patin.

Jean Riolan, the elder, who died in 1606, was Dean of the Faculté de Médecine from

1558 to 1559. His son, Jean Riolan, the younger (1577-1657) was professor of anatomy and botany at the Collège Royal, and physician to Marie de' Medici whose confidence he betrayed by spying on her actions for Richelieu. Although he denied the circulation of the blood and the existence of lacteal vessels and the lymphatic circulation, he made some advances, describing the fat appendices of the colon, naming the hepatic duct, and observing that the common bile-duct had but one membrane which served as a valve.

Triaire quotes from Tallemant des Reaux an amusing anecdote about Riolan. He was cut for stone in the bladder but some time afterwards had a recurrence, for which he refused to be cut again. His wife concealed Colot, the famous lithotomist, in the house. One day Riolan said he felt much better and thought he could stand the operation, and that he believed he would have himself cut if Colot were at hand. Thereupon, Colot appeared, and Riolan exclaimed that he could not have the operation; that he was not ready as he had not confessed. "All will fall on us," said Colot, "we will be damned for you, but you will be cut." He tied him up and cut him and then said, "Confess now, if you wish to." "No," said Riolan, "I am too well for that."

Patin often speaks with great admiration of the skill of the famous family of Colot. There were three of them who attained great fame as lithotomists. Patin, writing to Falconet (May 13, 1659), speaks of Janot, also a lithotomist of note, but not in Patin's good books, who had had the misfortune to lose three patients on whom he had operated. "The little Colot has cut many others who have recovered. I hope he will become as good and successful an operator as his father."

Stone in the kidneys or bladder seems to have been an exceedingly common complaint throughout Europe in the seventeenth century. Luther died of it, jestingly remarking that he was dying the death of Saint Stephen. Cutting for vesical calculus

was a very common operation almost exclusively in the hands of a class of special operators known as incisors, among whom the most illustrious were the Colot family of whom Patin so often speaks. His own therapeutics in such cases was quite simple. In 1649 he writes Falconet, who was a sufferer, to refrain from wine, drink plenty of water, and be bled six times a year, and as often take a purge of cassia and senna with syrup of *white roses*. He tells him it is a disease of literary men, *litteratorum carnifex*.

Patin thoroughly endorses all of Riolan's arguments against the anatomical discoveries of Harvey, Pecquet, and the other anatomists who were establishing the science of anatomy. Writing to Belin, fils, October 8, 1655, he says that the good man Riolan "had just published his new book against Pecquet, the discovery of the *receptaculum chyli* and the chyliferous vessels," adding that all who have read it agree with Riolan and mock the others.

#### HONORS CONFERRED ON PATIN

When Riolan oppressed with old age and sickness, resigned his chair as professor in the Collège Royal, 1654, in favor of Patin, the latter writes Falconet (October 9, 1654) with pardonable pride and joy to tell him the good news. He is to teach botany, pharmacy, and anatomy. "I will direct all my care to make good scholars who should be far from the Arabs and the impostures of chemists, who are the ordinary persons by whom young physicians are today empoisoned."

He describes (March 2, 1655) his introductory address:

It lasted a whole hour but it was not tiresome because it was a continuous history of the Collège Royal since the year 1529, when it was founded by François I, by whose successors the institution has been maintained, and governed by the grand aumoniers of France. Then I talked of the former professors who had rendered the Collège illustrious, such as Danesius, Turnebus, Carpentarius, the Durets, the grand Simon Piètre, and those who are yet living, as

M. Riolan, to whom I testified my gratitude for having chosen me as his successor. I saw there some white monks and even four children of the fortunate Père Ignace, I know not how they came there without being invited. One of our physicians just told me he had returned from the College of Cambrai yesterday with one of our antimonial companions, from whom he demanded what he thought of my harangue. The doctor answered that the Latin of it was good, but that there was too much idle talk in it, that I had deceived him as he had expected that I would talk against antimony, but that I had said nothing about it.

In 1655, Patin was offered a professorship at Boulogne, with a salary of 2,000 écus, and the opportunity of acquiring a large practice in that city. He declined, and writes Falconet (September 21, 1655):

Neither ambition nor the desire to become rich shall make me quit Paris. Five years ago I declined to go to Sweden with much better conditions. I am cured of the *perigrinomanie* and the *philargyrie*, or rather I have never been sick with them.

In 1658, the Ambassador of Venice asked Patin to go to Venice promising him a salary of 6,000 francs a year from the Senate of the Republic, and the prospect of acquiring a large practice. Patin says that his name was suggested to the Ambassador by de Gorris, one of his pet aversions. He declined the offer on the ground of his health and his desire not to leave Paris. The Ambassador then offered to give the appointment to his son, Robert Patin, but Guy would not hear of his accepting it, stating that it was necessary for his son to study five or six years more with him before he would be qualified to fill the position. He writes Falconet, "Italy is a country of syphilis, poisonings, and atheism, of Jews, renegades, and the greatest rascals in Christendom, all there is monkery and hypocrisy."

Patin also received an invitation to go to Denmark. He writes Falconet (May 4, 1663):

M., the Prince of Denmark and M., his Ambassador, wish to take me from here, and bring me to that cold country. They have written to their King, and he has charged them to take me. They have made me beautiful offers, but I do not wish it. I am neither to be sold nor bought. I wish to be buried at Paris near my good friends.

The premier president of the court of the Parlement of Paris, Lamoignon, was a great personage, and Patin writes Falconet (May 20, 1659) with evident pride:

I supped last Saturday with *M. le Premier Président*, where he made a great cheer. One eats quickly with him and talks little during the repast. He wished however, that I should drink his health twice in Spanish wine, which was extraordinarily good. Afterwards I talked with him a good hour and a half on various things in which he took great delight. He told me he was in difficulty how we should manage in the approaching summer, that he had wished to have leisure to talk with me once a week, an entire *après-dîner*, and that he feared, for lack of leisure, he would forget the little he had learned. Two *maîtres des requêtes*, who had come there to sup because of me, brought me away in their *carrosse*. He told me in parting that he had a design to make at his house a little academy, at least once a week, but he did not wish we should be more than six. He signified that I should be one and I believe my son, Carolus, will be of it also, because *M. le Premier Président* wishes as much good to him as to me.

It has been asserted, but without proof that the premier president used to have a louis placed under Guy's napkin each time that he was his guest. Patin, naturally, makes no mention of it, and the story seems to have been mere gossip.

Patin writes to Falconet (February 19, 1659):

*M. le Premier Président* sends for me sometimes to sup with him. He gives me great cheer, but his good welcome I value more than all the rest. I have promised to sup with him every Sunday in Lent, and later we will take other measures, according to the season. There is much pleasure with him, because he is the wisest man of the long robe (lawyer) in France. He is

very sage and very civil and says, smiling, that it is needless to speak evil of the Jesuits and the monks, nevertheless he is ravished when some *bon mot* against them escapes me.

Patin seems to have been a popular lecturer; at least his lectures were well attended. He writes to Spon (April 21, 1655):

I gave my first lecture today in the great hall of Cambrai. I had fifty-two scholars who took notes, and some (other) auditors . . . The same day when I gave my second lecture at Cambrai I had by actual count sixty-two auditors. As I saw that they enjoyed listening to me, I made my exposition last an entire hour, and went forth with great applause.

In 1657, he writes Spon that his first lecture was attended by ninety persons and his second, by one hundred and fifty.

Patin was on terms of intimate friendship with Pierre Gassendi (1592-1655) whom he terms "an abridgment of all the moral virtues and of all the great sciences." He also calls him one of the most honest and learned men of the day in France. Gassendi was a priest and was chiefly distinguished as a philosopher and mathematician though he was also a good anatomist.

#### PATIN'S OPINION OF PHYSICIANS

Charles Saumaise (Salmasius) was a great source of admiration to Patin, who terms him that "excellent and incomparable personage" in a letter to Spon (October 26, 1643). Saumaise was born in 1588, and died in 1658. He was not a physician but a philosopher and theologian. Like most of the savants of his time he dabbled occasionally in medical matters. To English readers he is most familiar as the antagonist of John Milton in a pamphlet war, in which Saumaise supported the Stuart cause. He was a Huguenot, but nevertheless Richelieu sought to attach him to his services.

Patin was greatly wrought up by hearing the statement made that Saumaise had spoken ill of physicians, so he writes to Spon<sup>18</sup> that he has searched the writings

<sup>18</sup> September 12, 1645.

of Saumaise to discover the place where he did so. He discovered that in writing of Attic and Roman law, Saumaise had referred to physicians as being mercenary. Patin says he is wrong to do so because on several occasions when Saumaise had been ill in Paris, he had been attended by physicians who, after saving him from the hands of a charlatan into which he had fallen, had declined to accept any pay for their services

## DE ANTIQUITATE

ET DIGNITATE  
SCHOLÆ MEDICÆ  
PARISIENSIS

PANEGYRIS,

CVM ORATIONIBVS  
ENCOMIASTICIS AD IX.

*Integronistis laureâ Medicâ  
donandos.*

Auctore GABR. NAUDÆO,  
Parif. Phil.

*Diuisijs animosâ suis.*



LVTETIÆ PARISIORVM,

Apud IOANNEM MOREAV, viâ Iacobâ,  
sub signo Globi Cælestis.

M. DC. XXVIII.

CVM PRIVILEGIO REGIS.

TITLE PAGE OF "DE ANTIQUITATE" BY GABRIEL NAUDÉ, 1628.

to him. He attributes the statement made by Saumaise to the fact that he had lost three children in one year, of smallpox, while living in Holland, due, thinks Patin, to the "rude and gross" methods of practice prevalent among the physicians of that country.

He is astonished that Saumaise should have expressed such an opinion. He adds that he only augments the number of those who have done so, of whom Pliny is chief.

As to Michel de Montaigne, of whom I make great case, he has honored doctors by his appro-

bation in their persons, and has only attacked their profession; and nevertheless he has been too hasty; if he had had ninety or one hundred years before condemning medicine, he would have had some color of reason, but having been sickly from early youth, and having lived only seventy years<sup>19</sup> it is necessary to acknowledge that he paid the debt too soon; wise travelers only mock the dogs of the village after they are got to a distance, and when they cannot be bitten.

Patin's own cynicism about members of his profession is shown in the following passage:

I will say, to the shame of my art if the doctors were only paid for the good that they actually do, they would not gain so much, but we profit from the foolishness of women, from the weakness of sick men, and from the credulity of everybody.

Yet he writes Falconet (November 4, 1650):

I will never speak insultingly of a doctor of medicine, because of the honor I bear to the profession, but I avow to you that all the chemists (van Helmont, Guénault, etc.) that I have known until now have been poor vagabonds, boasters, braggarts, and liars, or very ignorant impostors.

Patin refers again to those who have written against physicians in a letter to Spon (October 19, 1649), mentioning that among those who had done so were the elder Pliny, Montaigne, and Agrippa. But he says that in the month of February, 1617, the cold was so intense that his father and mother took him home from College, as they feared he would not be as warm there as by their fireside.

I remember that this little vacation was very agreeable to me, and being near a great fire much to my comfort, where the wood cost nothing, I read nearly all of a folio among the books of my late father, which was the "Commentaries" of Blaise de Montluc. . . . He cites pests, plagues, and declaims therein very rudely against the great number of physicians, advocates, and procurers, whom he calls the

<sup>19</sup> Montaigne died when only fifty-nine. He was born in 1533 and died in 1592.

vermin of the palace . . . A gentleman named Rampole made here an academic discourse in which he extended himself greatly against the inutility of a very great number of men of letters in a state, wherein he spared neither physicians nor others. I avow veritably that there are in France too many priests, monks and ministers of chemistry, I mean procurers and lawyers of all kinds. I do not even doubt that in the country and in the small towns there are too many physicians, and that many of them are very ignorant. In Amiens, which is a small city desolated by wars and the passage of armies, there are today twenty physicians. But those of whom there are undoubtedly too many in France are the monks and the apothecaries, who cut miserably the purse and throat of many poor people. In recompense there are very few good and wise physicians who have been well educated and taught. I see them even here, *qui malunt errare quam doceri*, although they have good means to amend themselves. As to the country, it is overrun with miserable physicians, *qui de se nihil nisi magnifice sentiunt*, because they have dipped their noses in Perdulcis, of whom they only understand half the terms, or they have heard tell of diamargaritum, of apozemes, of cordial juleps, and of *vin émétique*. The principal cause of this misfortune is the too great ease with which the little universities make doctors. They give parchments too easily for money at Angers, Caen, Valence, Aix, Toulouse, and Avignon. It is an abuse which merits punishment since it redounds to the detriment of the public, but by misfortune we are not in a state of amendment . . . But perhaps God will finally have pity on us, and will change these things.

#### CONTROVERSY WITH RENAUDOT

Among the most interesting controversies in which Patin engaged was the famous one between Théophraste Renaudot, "the gazeteer," and the Faculté de Médecine. Renaudot presents an interesting character study as a quack whose intelligence led him to institute really big things, though it is very open to question, whether he himself realized their utility, and he certainly could not have anticipated their subsequent developments. Born at Loudun about 1586, he received the degree of Doctor of Medicine at

Montpellier in 1606. He became acquainted with the famous Joseph François Leclerc, Marquis de Tremblay, more generally known as Père Joseph, a Capuchin monk, who was Cardinal Richelieu's right hand man and the only human being in whom he seems to have had implicit confidence. Renaudot went to live at Paris, in 1612, with the strongest recommendations from Père Joseph to Richelieu. These led to the latter procuring for him the appointment of physician-in-ordinary to the King, Louis XIII. He became a favorite of Louis, and speedily procured the royal authority, backed by a decree of the Parlement of Paris, to establish a *bureau d'adresses*, or sort of employment agency, to which he added a pawnshop, or *Mont-de-Piété*, where money was advanced on the salaries of the borrowers, and also a free dispensary, or *consultations charitables*, all of which establishments are fully described in a pamphlet entitled "Inventaire de bureau de rencontre où chacun peut donner ou recevoir avis de toutes les nécessités et commodités de la vie et société humaine," published at Paris in 1620. The following year he began the publication of a newspaper, *The Gazette*, the first French newspaper.

Readers of *Cyrano de Bergerac* will recall the scene in the second act in the restaurant of Ragueneau, when the crowd is overwhelming *Cyrano* with congratulations on his victory over his hundred assailants at the porte de Vesle. He is approached by a "man of letters" with a writing case, who asks him if he can have the details of the contest. *Cyrano* repulses him, whereupon his friend Le Bret tells him: "He is Théophraste Renaudot! the inventor of *The Gazette*."

Cette feuille ou l'on fait tant de chose tenir!  
On dit que cette idée a beaucoup d'avenir!

Those of us who are interested in Guy Patin can only express our regret that the great French poet did not see fit to make him likewise a figurant with his antagonist. He shortly afterwards ran foul of the

Faculté de Médecine by attempting to establish, with the connivance and assistance of the doctors of Montpellier and the apothecaries, a rival school of medicine. The attempt was fraught with danger to the eminence of the Faculté, and they at once entered upon a fierce struggle with the audacious Renaudot, who, backed by the formidable friendship and favor of the King and Cardinal, put up a good fight. The death of Richelieu on December 4, 1642, was fatal to Renaudot's chances. In March, 1643, Patin wrote to Spon that "he had folded his baggage" since the death of his chief support. In the same letter he refers contemptuously to a recent publication of Renaudot's "*La présence des absents, ou facile moyen de rendre présent au médecin l'état d'un malade absent. Dressé par le docteur consultant charitablement à Paris, pour les pauvres malades*" in which he discourses on a method of treatment by correspondence which he had organized and which as Triaire remarks has certainly not been equaled by contemporary charlatans, nor, we might add, by the Christian Scientists.

Before his death, Richelieu had accorded to Renaudot a large amount of land in the Faubourg St. Antoine, ostensibly for the *consultations charitables*, but Triaire states that the ground was really intended for the purposes of the school of medicine which Renaudot proposed to found in opposition to the Faculté de Médecine. The Cardinal hated the University of Paris because it possessed certain rights and privileges which were in opposition to the royal power.<sup>20</sup>

<sup>20</sup> Among other privileges claimed by the Faculté de Médecine of Paris, was that of exemption from military service. In 1634, the Spanish and German armies invaded France and succeeded in capturing Corbie, only thirty-three leagues from Paris. The country rallied patriotically. All the great bodies of the state subscribed to the fund raised by Paris, which also raised 28,000 men. The Faculté gave 1,000 écus. Patin writes to Belin, August 29, 1636, that the Faculté de Médecine claimed its exemption from military service on account of exemptions often confirmed in its registers. He adds that he himself has subscribed 12 écus to the fund raised by the Faculté.

Because its professors and students were often not amenable to the despotic power Richelieu wished to wield, Triaire thinks that the Cardinal backed Renaudot in his scheme with the deliberate purpose of destroying or, at least, lessening the power of the Faculté de Médecine. This explains the extreme animosity of the physicians toward Renaudot and the ardor with which they pursued the fight against him. The contest was not just with a successful charlatan, but against the despotism of the all powerful Minister, and it is little wonder that we find Patin breathing a sigh of relief at Richelieu's death, "il est en plomb, l'éminent personnage."<sup>21</sup>

In a letter to Spon (March, 1643) Patin again joyfully refers to the great man's decease. "The Gazeteer is living with Guillot le Songeur since the death of his inspirer (protocole) who held him up against us. But, God be thanked, he has folded his baggage."

Il est en plomb, l'excellent personnage  
Qui a nos maux a ri plus de vingt ans.

Patin writes to Spon<sup>22</sup> some details of the last illness and autopsy of Richelieu. The Cardinal died on December 4, 1642, after only six days of acute illness, though he had been very feeble and in poor health for a long time. During the preceding summer he had been in the south of France busied in suppressing the insurrection of Cinq-Mars. He returned to Paris in a litter on October 17th. While absent he had been operated

<sup>21</sup> This is a quotation from a rondeau written by Miron which Triaire gives:

"Il est passé, il a plié bagage,  
Ce Cardinal, dont c'est moult grand dommage,  
Pour sa maison. C'est comme je l'entends;  
Car pour autrui, maint hommes sont content;  
En bonne foi, et n'en voie que l'image,  
Sous sa faveur il enrichit son langage,  
Par dons, par vols, par fraude et mariage,  
Mais aujourd'hui, il n'est plus le temps,  
Il est passé.  
Or, parlerons sans crainte d'être en cage.  
Il est en plomb, l'éminent personnage  
Qui de nos maux a ri plus de vingt ans."

<sup>22</sup> December, 1642.

upon for an abscess of the rectum. Patin says that a few days before Richelieu's death, in desperation he had submitted to the ministrations of a female empiric, who had given him horses' dung in white wine, and that another charlatan had given him a pill containing opium, because he did not think that the treatment by his regular physicians had been after the most approved manner. Triaire<sup>23</sup> quotes from a contemporary account of Richelieu's last days:

November 28th the Cardinal was taken with a violent chill and pain in the side. Bouvard summoned, bled him twice in the night of Sunday or Monday, but the patient spat blood and his fever increased. From Monday to Tuesday the pain having augmented, they practiced two new bleedings. Tuesday, December 2nd, a consultation was held at which it was decided to make a new emission of blood, and to have recourse to purgatives. The fever having redoubled in the evening they made two more bleedings. On Wednesday, December 3rd, an empiric of Troyes named Lefevre, was called in and administered a pilule which seemed to give a little relief. Finally, Thursday, December 4th, the seventh day of the illness, the Cardinal was seized with cold sweats, and died at noon.

At the autopsy the brain was found to be of unusual size.

It is curious how frequently autopsies were performed at that time. Patin's letters describe many of them. Pic<sup>24</sup> conjectures it was because of the frequency with which the deaths of prominent personages were ascribed to poisoning, but this seems doubtful as they were performed in many instances in cases where no such suspicion could have been entertained. This may have been the reason that the bodies of the Kings of France were always subjected to an official post-mortem examination, but would hardly suffice to explain the frequency of the examination of the bodies of private individuals.

Richelieu was a dangerous antagonist. The war was conducted chiefly through the medium of virulent pamphlets. As Patin

writes to Belin in May, 1641, if "the Gaze-teer," as he terms Renaudot, had not been sustained by his Eminence, the Faculté would have instituted a criminal process against him, but it would have been doomed to failure against such influence. Michel de la Vigne, Moreau, Riolan, Patin and other members of the Faculté wrote tracts in which Renaudot was excoriated and held up to contempt. Richelieu ordered them to cease.

Renaudot seems to have been particularly stung by the attacks of Guy Patin, who had termed him "nebulo" and "blatero," a nebulous braggart. He had Patin summoned before the *Maitre des requêtes*, and it is sad but true that Guy only extricated himself from the charge of libel by asseverating that the terms as he used them were intended to be applied to Guy de la Brosse, the founder of the Jardin du Roi, and not to Renaudot. The latter, not to be thwarted, got a sister of de la Brosse, who was dead, to sue Patin before the *Juges de requêtes de l'Hotel*. At the trial of the process Patin distinguished himself by addressing the court in his own behalf for hours, "with an eloquence, erudition, and esprit" which made the judges marvel.

They gave judgment for Patin on August 14, 1642, and needless to say he was greatly elated at his triumph. The Faculté proceeded actively against Renaudot, after he was deprived of his powerful protectors, the King and Richelieu. They took the matter up before the Châtelet, accusing Renaudot of practicing medicine illegally, and procured an order by which Renaudot and his associates were commanded to cease their enterprises. Renaudot appealed to the court of the Parlement of Paris, which august body on March 1, 1644, also rendered a verdict against him. Thenceforth, he passed into obscurity and no longer troubled the repose of the Faculté.

One method of expressing his contempt of Renaudot which Patin used, appears somewhat undignified as well as laborious. On September 17, 1643, Patin caused a Bachelor

<sup>23</sup> Lettres de Guy Patin, footnote, 1, 155.

<sup>24</sup> Guy Patin.

of Medicine named Courtois to sustain before the Faculté, a *thèse* which Patin had written, "Est-ne totus homo a natura morbus" (Do the maladies of man all come from nature?). It had a great success, six editions being printed. In a letter to Spon, December 24, 1643, he tells him that he has sent him a copy, and directs his attention to a passage where, in writing of diseases of the nose, he will find after the word *nebulones* the name of Renaudot, by taking the first letter of each word of the eight following. I give the transcription of the passage as illustrative of a far-fetched seventeenth century witticism:

"Corruptum nasum sequitur corruptio morum; existo enim masonum genere, qui, acidulo ore loquuntur, nebulones sunt, Ridiculi, Effranaei, Nefarii, Ardeliones, Vafri, Dolosi, Absceni Turbulenti, mendaces, maligni, invidi, quadruplatores, flagitiosi, infames, contumeliosi, facinorosi."

Writing to Spon (1650) of his great admiration for the poems of Ovid (Ovidius Naso), he says:

Ovid was a *bel esprit* and I would willingly reread his works if I had the time. For his surname Naso it pleases me by the sympathy which I have for the big nosed, and the hatred I bear to the flat (canus) which are nearly all stinking and filthy, as "The Gazeteer," Théophraste Renaudot, against whom I gained the beautiful process on August 14, 1642. Thus I remember in going forth from the Palace (*palais de justice*) that day, I approached him, saying, "M. Renaudot, you can console yourself because you have gained in losing," "How then?" said he. "It is," said I to him, "because flat nosed when you entered here, you are going out with a foot more of nose."<sup>25</sup>

Renaudot responded to Patin's personalities by equally sharp replies. Because of the

<sup>25</sup> The French have a proverbial expression applicable to one who is humiliated or chagrined that he has received *un pied de nez*.

fact that Patin confined his therapeutic measures almost entirely to bleeding (*la saignée*), syrup of roses and senna, he was nicknamed "Doctor Three Ss."

Renaudot refers to this in the following epigram:

Nos docteur de la Faculté,  
Aux malades parfois s'il rendent la santé,  
Ont hesoïn de l'apothicaire;  
Mais Patin s'en dispense et, plein de dignité,  
Avec trois S les enterré.

Patin<sup>26</sup> tells how the Faculté scored on "The Gazeteer" in one instance. A rich old abbé, who was one of Richelieu's attendants, had been attended by Renaudot during an attack of gout. Renaudot gave him a powerful purgative which aggravated his attack. The abbé discharged him and put himself in the care of a member of the Faculté, who cured him. The old gentleman felt so grateful that he gave the Faculté 10,000 écus towards rebuilding. Patin writes: "The Gazeteer' from whom this prey has escaped has too good a heart to break over it, but however, I do not doubt that he is much vexed."

Renaudot was obliged to give up his *consultations charitables*, his project for a college of medicine and his pawnshop, but permitted to continue his *bureau d'adresses* and *The Gazette*. He died on October 25, 1553. His two sons, Isaac and Eusebius, both became members of the Faculté de Médecine, but only after a decree of the Parliament of Paris in 1642 had ordered their admission, which order was not complied with by the Faculté until 1647 or 1648. They continued to publish *The Gazette*, but before taking the oath required for the doctorate, were obliged to give up the *bureau d'adresses* and disavow the conduct of their father, in an oath taken before a notary.

<sup>26</sup> Letter to Spon, March 28, 1643.

(To be concluded)



ROBERT TALBOR, MADAME DE SÉVIGNÉ, AND THE  
INTRODUCTION OF CINCHONA

AN EPISODE ILLUSTRATING THE INFLUENCE OF WOMEN IN MEDICINE

By GEORGE DOCK, M. D.

ST. LOUIS, MO.

BOOK collectors, like prospectors, game hunters and gamblers, sometimes experience coincidences that show how, in predisposed minds, faith in portents, dreams, guiding Providences or the divining rod may be established. Among several personal incidents for this kind, the finding of a certain little book is one of the most striking. In the summer of 1901 I was in London, and, for reasons not necessary to state, was avoiding old book shops. Walking down Shaftsbury Avenue one day, however, I withstood the temptations of the antiquaries that then lined that street until I came even with a window of a small shop that had lying on its one shelf about a dozen books equally inconspicuous and without legends or announcements of any kind. I walked through the open door and picked up a volume at random. As soon as I opened it, I saw the book was by one of the numerous romantic figures in medicine. It was a book I had long known of but had never seen. I looked over the others, and found nothing of interest; the first I picked was the only one on a medical topic. The price was so low that my scruples vanished, and I walked down Piccadilly with the same sort of feeling

a Henry Huntington might have when he has acquired a Gutenberg Bible or a "Rape of Lucrece."

The book is the "Pyretologia" of Robert Talbor, printed in 1672, the full title being: "A Rational Account/ of the/ Cause &



MADAME DE SÉVIGNÉ  
(1626-1696)

Cure of/ Agues,/ with their Signs/ Diagnostick & Prognostick./ Also/ Some specifick Medicines/ prescribed for the Cure of all/ sorts of Agues; With an account of a successful Method of the Authors/ for the Cure of the most Tedious and Dangerous Quartans./ Likewise some Observations of/ Cures performed by the aforesaid Method./ Whereunto is added/ A short Account of the Cause and Cure of/ Feavers, and the Griping of the Guts, agreeable to Nature's rules and Method/ of Healing./ Author

Rto Talbor Pyretiatro./ Non multa, sed multum./ London, Printed for R. Robinson, and/ are to be Sold at his Shop near Greys Inne Gate in Holburn, 1672."

In order to realize its bibliographic value one must know that the library of the Surgeon-General's Office contains no copy (May, 1922); the only other one known to me being in the British Museum.

It is a 16 mo. of 8 + 77 + 4 pages; the text measuring  $4\frac{3}{16} \times 2\frac{7}{16}$  inches, with

catchwords. The paper is of fair quality, the type plain Roman and Italic of the period; the typesetting and printing inferior.

To understand the intrinsic value of the book it is necessary to turn to the history of the use of cinchona bark. The early history of this in its home in Peru is so wrapped in legend that the inquisitive Humboldt could not unravel it. The actual history begins at the earliest in 1632, when the Jesuits first sent the bark to Spain, but did not exploit it until 1638, or 1640, when the Countess of Chinchon, wife of the viceroy of Peru, was cured of ague by the bark. Soon afterwards, 1643, the General Procurator of the Order of Jesus, Cardinal de Lugo, made known the merits of the powder on a tour of France, and after that, under the name of Jesuits' or Cardinals' powder, the sale was actively promoted by missionaries of the Order, who developed a lucrative trade, which probably reached its height about 1649, when a large supply was distributed by the Jesuits. In 1653 failure to cure the Archduke Leopold of Austria caused a temporary lull in the use of the powder. In 1655 it was introduced into England under the names of Jesuits' powder, fever bark, Peruvian bark, etc. A violent epidemic of malaria that occurred in England soon afterward gave plenty of opportunity to use the remedy. In 1666 Sydenham first published his "Methodus Curandi Febres" in which he described the use of the bark, but in this and the edition of 1668 he spoke briefly and not very favorably of the drug. In 1676 he was more definite and in the preface spoke of the bark in malaria as a specific like mercury and sarsaparilla in syphilis. By medical historians he has usually been credited with establishing the remedy, by putting its application on a sound and clearly described basis, and in medical literature he is often compared with Talbor to the disadvantage of the latter. On the other hand it has been said that Sydenham owed his knowledge to Talbor. This question cannot be settled, but one thing seems certain; in the words

of Latham, "what Sydenham gave away, Talbor sold." The "Medical Observations" contain much interesting material on the natural history and treatment of malarial diseases.<sup>1</sup>

According to the "Dictionary of National Biography," Robert Tabor, Tabord, Talbor or Talbot, was born about 1642. He was apprenticed to a Cambridge apothecary (Gideon Harvey called him a "debauched Cambridge apprentice"). Publishing his "Pyretology" in 1672, he soon became famous, notwithstanding opposition—perhaps on account of it. According to Edward Sheffield, Marquis of Normanby, he was lucky enough to save the life of Charles II when threatened with ague. Richard Lower had refused to sanction the cinchona treatment. By the intervention of Thomas Short, Talbor was permitted to make the experiment and was completely successful. In consequence he was appointed one of the King's physicians in ordinary and was knighted at Whitehall in 1678. According to the common account, Charles recommended Talbor to Louis XIV when the Dauphin was ill with ague. The usual reference to Evelyn's "Diary" is dubious, because the story was told in 1695 or sixteen years after the event, and in one of the latest editions of the diary, Talbor is called Tudor. The *Gazette* of September 23, 1679, says just before this date Charles had some paroxysms of fever, and that on the 15th he had taken the remedy of the Chevalier Talbot and recovered perfectly.

Some account of the "Pyretology" may now be given. It is dedicated to certain "citizens and the rest of those worthy persons who have been my patients," and in the dedication anticipates the objections likely to be raised. In the preface the author says that having failed to learn anything about agues in the books, he "planted himself in Essex in a place where agues were epidemic diseases." Living there some years he "attained to a perfect knowledge of the cure of the most inveterate agues."

<sup>1</sup> Sydenham Society Edition, Vol. I.

The introduction begins with Adam and his pharmacologic knowledge, unfortunately lost in the "Fall," goes on to a reference to the doctrine of signatures, the ibis and the invention of clysters, the "sea-horse in Nilas" and bloodletting, and the development of empirical medicine. Then follows a physiologic excursion into the functions of the spleen and stomach, the "Duumvirate of van Helmont, whose defects give birth to all internal diseases." Chapter II discourses on the cause of intermitting fevers or agues, namely obstructions in the circulation, with ebullition. In this chapter we learn of the vomiting of "ague cakes." Chapters III and IV deal with the diagnosis and prognosis of agues. In Chapter V the cure is considered, especially with drugs used before cinchona, such as *Crocus metallorum*, myrrh and aloes, *carduus benedictus*, salts of tartar and laudanum. In Chapter VI charms are discussed, briefly described as either "words of no sense, which disturb not the imagination; or words of similitude, that humor and feed the imagination; or scripture words, which out of a conceit that such texts and words have power, do strengthen the imagination." On page 42, in Chapter VII, the author begins to set forth his particular method of curing all sorts of agues. This is done in so obscure a manner as to be incomprehensible and includes a warning against Jesuits' powder, "as it is given by unskilful hands."—"Yet is this powder not altogether to be condemned." The usual impression of the reader must have been very different from that given by Sydenham. Chapters VIII and IX deal with the diet to be observed during a cure. A few cases are cited briefly. The following pages, more than twenty, have little to do with ague or bark.

The book, therefore, small as it is, makes perfectly clear the charlatanism of the author, and frees Lower from any suspicion of narrow antagonism.

The stock bibliographies tell that Charles II sent Talbor to France to treat the Dauphin. The French expedition is men-

tioned in many biographies, letters and newspapers, but it is impossible to derive from them a connected story of their relation. According to La Fontaine, Talbor came to France with letters of recommendation from the Duchess of Mazarin. In the letters of Madame de Sévigné, one can find details that suggest a simple explanation—the puffing of a real or supposed healer by clever and influential people, chiefly women and ecclesiastics, until he was forced into the medical notice of the highest social set of the period, and then was successful in converting no less powerful a monarch than the "Sun King" himself, and from him obtained honors and riches. In order to give some idea of this part of the story, I must begin with a description of my chief authority.

Madame de Sévigné, born in 1626, and named Marie de Rabutin Chantal, was the daughter of a brilliant and reckless nobleman, one of the finest examples of a witty and profligate age. Orphaned at the age of seven and brought up by her uncle, Christophe de Coulanges, Abbé of Livry, she was distinguished from her childhood by her beauty, especially that of her hair and complexion, and all her later life by her vivacity and energy and her devotion to her friends. Her affection for, and interest in, her daughter make her the more conspicuous. The Marquis de Sévigné, whom she married at the age of eighteen, was chiefly noted for his extravagance and his love affairs. The most celebrated of these was with the marvelous Ninon de l'Enclos, and he was killed in a duel over another woman known as "La Belle Lolo." "Left a widow at twenty-five, and more beautiful than ever, the marquise never married again despite frequent offers," and preserved a reputation unique at that period.

Her idolatrous love for her only daughter was the cause of her great literary activity, for, of her many hundreds of letters, now accessible in the luxuriously edited series of "Les Grands Écrivains de la France,"<sup>2</sup>

<sup>2</sup> 15 vol., 8°, Paris, 1862-1868.

most were written to that rather unresponsive woman. Though her interests and topics for correspondence were all-embracing, it is noteworthy that the subject of health became more conspicuous after she passed middle life. Her "triumphant health" then failed. She became rheumatic, with torticollis, and arthritis of the hands and knees, nephritic and bilious colic and other *maux*. I can find no evidence of focal infection, but more complete reading of the letters may disclose something. Her description of Vichy and its baths illustrates the best of her *reportage* qualities, as a short but charming article by Dr. Guy Hinsdale shows.<sup>3</sup> Scorn of disease and of physicians changed to an intense interest in the symptoms of herself and her friends, and in medical practice. She discusses chocolate, tea, coffee and rice from the standpoint of disease; she describes the uses of periwinkle tea, viper broth and crayfish eyes; she tells how the Capuchins treated her leg with herbs which they then buried. Her cousin, the witty but ribald Bussy de Rabutin, writes her of the virtues of urine. "It is said to be good for all fevers. You take the urine of the patient, and in it cook an egg; give it to a dog and the dog dies and the patient lives."

Her writings are not easy for the reader untrained in seventeenth century French. Though fluent and clear in general, they are full of archaisms, show traces of the *Precieuses* to whom she belonged in her early days, and a fondness for unusual words and phrases, not all of which are set forth in the available *Dictionnaires* but are greatly helped out by the grammatical introduction and glossary included in the edition named above.

I shall quote chiefly with a view to the medical interest, thus leaving out many evidences of wide learning, of a strong leaning toward theology and the intimate personal knowledge of the highest and most illustrious society of the reign of the Grand Monarch.

<sup>3</sup> *N. York M. J.*, 1917, cvi, 1121.

I begin with a letter of August 24, 1679:

The Cardinal de Retz (a relative) died today after seven days of continuous fever. It was not God's will that he should have the English Remedy, although he wished it and the experience of our good Abbé of Coulanges was quite recent. His Eminence himself decided for us, extricating us from the cruel Faculty, protesting that if he had a single paroxysm he would send for the English physician. He fell sick, he requested the remedy, he had fever and was prostrated by humors that made him weak, and a hiccup that indicated bile in the stomach. All that is precisely what is proper for the treatment, and checked by the warm and vinous remedy of the Englishman. Madame de la Fayette, my daughter and I plead for mercy and presently our Abbé recovered. But God does not will that anyone should decide, and all say: "I do not wish the responsibility." At last M. Petit, supported by M. Belay, let blood four times in three days and later gave two small glasses of cassia, which distressed him, for cassia is not an indifferent remedy in malignant fevers. When the poor Cardinal was in the death agony they consented that the Englishman should be brought. He came and said he could not raise the dead. Thus perished before our eyes that man so amiable and so illustrious, whom one could not know without loving.

Soon after the Abbé needed help again and on September 29th, Madame de Sévigné writes her daughter:

The Englishman has come to see the good Abbé, for the cold that frightens us; he has mixed with his wine and cinchona a certain sort of sweet thing which is so effective that the good Abbé feels his indisposition quite recovered.

Cousin Emmanuel de Coulange, who had a pretty taste for sonnets and madrigals, celebrated the recovery by a couplet saying:

De la liqueur charmante  
Qu'un médecin anglais répand sur son cerveau.

In the same letter Madame de Sévigné speaks of Hautefeuille, who was instantly cured of flux of the chest and of a continued fever, and says that "Tabord" has gone to Spain to treat the queen. Several other brief references to the healing of the Abbé

follow in other letters. On October 6th, she wrote her daughter: "The good Abbé is perfectly well . . . The Englishman is divine," but the very next day she says of the Abbé: "His hour had not yet come, as the others' had."

On All Saints' Day she writes that the Englishman's remedy is soon to be made public, "which will make the doctors contemptible with their bleedings and their medicines."

In the *Mercure Galant* of October, 1679, it is stated that "the King, convinced of the excellence of the remedy, bought it, and it is a secret of which M. Daquin, chief physician to His Majesty is the present possessor."

On November 24th she writes her daughter:

Mon Dieu, my dearest, what a charming letter! . . . What a pleasure to hear you discourse on all the topics you treat! That on medicine transports me. I am sure that with the intelligence and facility for learning that God has given you, you will know more than the doctors; you lack some experience, and you cannot kill with impunity as they do; but I would trust myself more willingly to you than to them for an opinion on a disease. Health alone is considered in this world: *Comment vous portez-vous? Comment vous portez-vous?* . . . I assure you the doctors are much scorned here, except the three or four you know and who advise the English remedy. The Englishman is about to save Marshal de Bellefonds from death. I do not believe the first physician of the King has the true secret. . . . It is then true that you are well? No lungs, no pain in the legs, no colic? See that you rest.

On January 17, 1680, she wrote her daughter:

M. de St. Omer was *in extremis*; received all the sacraments. He had obstinately maintained he would not be bled, with a heavy fever, an inflammation. The English physician had him bled by force, imagine how he needed it; and then he restored him to life with his remedy. In three days he played chuckhole.<sup>4</sup>

<sup>4</sup>A reference to Molière's play, "Le Médecin Malgré Lui."

A week later she wrote: "M. de St. Omer is cured by the Englishman. The Duchess of St. Aignan is dead. It is true the medicine was given only in the agony."

Soon after this one of her greatest sorrows came in the illness and death of her neighbor and friend, the Duke de la Rochefoucauld, author of the "Maxims," soldier, man of gallantry and fashion, and lover of Madame de la Fayette, one of Madame de Sévigné's most intimate friends—"a woman of strong mind, witty and discerning, frank, kind-hearted and true." "He (the Duke) gave me intellect," she said, "and I reformed his heart."

I fear we shall lose M. de la Rochefoucauld this time. His fever has continued; he received Our Lord today. But his conscience is clear; the disease and death of his neighbor affect him. He is not agitated. He intends to hear the case of the physician, of Brother Angelo and of the Englishman. It is not in vain that he composed maxims all his life; he approaches his last moments as if they had nothing new or strange for him. M. de Marsillac (his son) came in . . . and after many commotions, many cabals, Gourville against the Englishman, Langlade for the latter, each one followed by many of the family and the two chiefs preserving all the ill-temper they had for each other, M. de Marsillac decided in favor of the Englishman, and today at five and at eight, M. de la Rochefoucauld took his remedy. As no one enters the house, one hardly knows the truth, but I am assured that having been near death once in the night, by the strength of the remedy and the humor of the gout he had so large an evacuation, that although the fever is not lessened there is every hope. For myself I am convinced he will recover . . . that the remedy will work the complete miracle. . . . M. de la Rochefoucauld is always in the same condition; his legs are swollen; that displeases the Englishman, but he believes that his remedy will cure everything. If it does, I shall wonder at the kindness of the doctors, that do not kill, assassinate, tear and massacre him. Du Chesne (physician to the "Invalides," recently opened) does not much care, but the others are furious.

However, the Duke died, as Madame de Sévigné wrote on March 17, 1680:

Last Saturday the remedy of the Englishman worked marvels; the head free, the fever less; the evacuations healthy. In that state he turned to death. All of a sudden the paroxysms of fever, the oppression, the dreams; in a word, the gout strangled him treacherously, and although he had considerable strength, and had not been at all depressed by the bleedings, he only wanted four or five hours for escaping; and at midnight he gave up the Ghost.

Nothing could be more characteristic than the way in which Madame de Sévigné gives the charlatan credit for all improvement, rails at physicians for their failures, and accepts the failures of the quack with never a suspicion of blame or responsibility. Her fondness for non-professional remedies is well shown in a letter to her daughter on November 22, 1680: "Pray do not lose the Capuchin water your cook took you; it is a marvel for all pains of the body, blows on the head, contusions and even cuts, when one has courage to bear the pain."

Again we hear of friends cured by the English remedy—M. d'Evreux, M. de Lesdiguière, . . . "cured by a miracle, and thousands more." Among those were many illustrious persons who fell sick on a tour in Flanders: The Prince of Condé, the Dauphin and Dauphiness, Colbert, the Duke of Villeroi, all were cured, it was said, by the English remedy.

On the other hand, M. d'Hautesfort, famous for his parsimony and said to be the original of "L'Avare," refused the remedy, saying, "It was too dear," and died. He was told it cost only 40 pistoles. He said, while dying: "Too much."

It was not until November, 1680, that we read of the interest of the King:

Chevalier Talbot (the change in the spelling is said to have been due to a desire for a more distinguished name) promised the King on his head, and so positively, to cure Monseigneur in four days, both of the fever and the diarrhœa, that if he does not succeed I believe they would throw him out of the window. But if his prophecies are as true as they have been for all the sick he has treated, they should build him a temple as to Aesculapius. . . .

(The *Mercure* of October, 1680, says that Daquin used the remedy for curing intermittent fevers, and that Fagon, the physician to the Queen, also knew how to prepare it.)

The King made him prepare the remedy before him, and confided to him the health of Monseigneur. As for the Dauphiness, she is already cured, and the Count de Gramont said yesterday in Daquin's face:

Talbot is the conqueror of death;  
Daquin cannot resist him;  
The Dauphin is convalescent  
As everyone sings.<sup>5</sup>

The King, convinced of the virtues of Talbor's remedy, purchased the secret, and had Talbor publish it. Talbor died in 1681, too early to profit by the *réclame* given by the sale of the remedy. The work appeared in French, and was soon translated into English. The title page of the copy in the Surgeon-General's Library is as follows: "The ENGLISH REMEDY:/ or,/ TALBOR'S WONDERFUL SECRET, FOR CUREING OF Agues and Feavers/ SOLD By the Author Sir Robert Talbor, to the/ most Christian King, and since his/ Death, ordered by his Majesty to be/ Published in *French* for the Benefit/ of his Subjects./ AND NOW/ Translated into English for Publick Good—London:/ Printed by J. Wally for Jos. Hindmarsh at the/Black Bull in *Cornhill*. MDCLXXII. 5 $\frac{3}{4}$  × 3 $\frac{1}{16}$ , p. 112.

The bookseller's preface has a marked political tendency:

As the French King hath learned of an Englishman the Secret of Curing Agues in the natural body, so he may learn from the prudent conduct of England's King (if it be not too hard to be imitated) the royal secret of stopping the Ague fits of the State, occasioned by the fermentations of corrupt and seditious humors in some of the noble parts, and in the lower regions of the body politick, and of curing the Distempers without much purging or blood-letting.

<sup>5</sup>A parody on a chorus in "Alceste" by La Fontaine.

The remedy was an extract of Peruvian bark in claret, the formula varied from time to time to disguise it, a method still used by some makers of proprietary remedies. It may be stated that the word cinchona came from a mistaken spelling of the name of the Countess of Chinchon; the name "Cortex Sinensis" from the supposed source in China, while the word quinquina, or kina-kina is said to be the Indian name for fever and ague.

Talbor tried to corner the market by buying up all the bark in France, the price going up to £15 sterling, a pound, later falling to 4 or 5. The Jesuits had sold it at 8 or 9 shillings for a dose of two drachms. According to La Fontaine, Louis XIV bought large quantities in Lisbon and Cadiz.

Talbor gave the remedy at the end of a fit of ague, or in quartans the night before the expected paroxysm. It was repeated every three hours, except during sleep, up

to the time of the next fit, and when they were broken, in the morning and evening. He recognized that the virtue of cinchona was exerted chiefly in periodic fevers.

From time to time Madame de Sévigné made further references to cinchona in her correspondence, in the illnesses of various people, including the King. Thus October 16, 1689: "What joy, my dear child, that the quinquina has made its usual miracle!" Again, December 1, 1690, "M. de Grignan has been taken very severely four or five days with colic and continued fever, with two paroxysms a day. That would be serious if it had not been arrested by the ordinary miracles of quinquina; but do not forget that it is just as good for the colic as for the fever."

I may overrate the importance of the influence of the great letter writer, but I do not feel the need of apologizing for quoting from her epistles.



# REGULATING PHYSICIANS IN COLONIAL VIRGINIA

By EDWARD INGLE

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INTERESTING reflections of circumstances of medical practice in colonial Virginia appear in William Waller Hening's "Statutes at Large," a collection, in thirteen volumes, of the laws enacted by the General Assembly of the Colony.

In studying this collection, one of the basic sources of the history of Virginia, as well as the statutes of other American colonies, one should bear in mind that a tendency of law-making bodies of the time was to reproduce, on this side of the water, English laws or customs, that enactment was not infrequently the end of the subject-matter and that ills to be cured by law may have been anticipative rather than actual.

The first important legislation affecting physicians seems to have been in 1639, thirty-two years after the settlement at Jamestown had assured permanent English life on this Continent. It was virtually repeated in 1646. Additions to it came in 1661, 1662 and 1736, with modifications in the meanwhile. The full texts of four of the laws follow.

## ACT XV—MARCH, 1645-6

Whereas by the 9th act of Assembly held the 21st of October, 1639, consideration being had and taken of the immoderate and excessive rates and prices exacted by practitioners in physick and chyrurgery and the complaints made to the then Assembly of the bad consequence thereof, It so happening through the said intollerable exactions that the hearts of divers masters were hardened rather to suffer their servants to perish for want of fitt meanes and applications than by seeking releife to fall into the hands of griping and avaricious men, It being apprehended by such masters who were more swayed by politick respects than Xian (Christian) duty or charity, That it was the more gainfull and saving way to stand the hazard of their servants than to entertain the certain charge of a phisitian or chirurgeon whose

demands for the most parte exceed the purchase of the patient, It was therefore enacted for the better redrese of the like abuses thereafter vntil some fitter course should be advised on, for the regulating phisitians and chirurgeons within the collony, That it should be lawfull and free for any person or persons in such cases where they should conceive the acco't of the phisitian or chirurgeon to be vnreasonable either for his pains or for his druggs or medicines, to arrest the said phisitian or chirurgeon either to the quarter court or county court where they inhabitt, where the said phisitian should declare vpon oath the true value worth and quantity of his druggs and medicines administred for the vse of the plt. wherevpon the court where the matter was tryed was to adjudge and allow to the said phisitian or chirurgeon such satisfaction and reward as they in their discretion should think fitt, And it was further ordered that when it should be sufficiently proved in any of the said courts that a phisitian or chirurgeon had neglected his patient, or that he had refused, being thereunto required, his helpe and assistance to any person or persons in sickness or extremity, That the said phisitian or chirurgeon should be censured by the said court for such his neglect or refuseall, which said act and every clause therein mentioned and repeated, *this present Assembly to all intents and purposes doth revive, rattifie, allow, and confirme with this only exception that the plts. or patients shall have their remedie at the county courts respectively vnless in case of appeale.*—Hening's *Statutes*, i, 316.

## ACT XXIV—MARCH, 1660-1 Chirurgeons accounts pleadable

Whereas by a former act of assembly no accompts are pleadable against dead men's estates whereby some scruples have been made about the accompts of phisitians and Chirurgeons cannot possibly take bills, *Bee itt therefore enacted* that phisitians and chyrurgeons accompts shall be pleadable and recoverable for meanes administred and paines taken in the



fitt of sicknesse whereof the patient dyes, and where the patient recovers six months after such recovery and noe longer.—Hening's *Statutes*, ii, 26.

ACT XCII—MARCH, 1661-2  
Chirurgions accounts regulated

Whereas the excessive and immoderate prices exacted by diverse avaritious and gripeing practitioners in phisick and chirurgery hath caused severall hardhearted masters swayed by profitable rather than charitable respects, rather to expose a sick servant to a hazard of recovery than put themselves to the certaine charge of a rigorous though unskilfull phisician, whose demands for the most part exceed the purchase of the patient, many other poore people also being forced to give themselves over to a lingering disease, rather than ruine themselves by endeavouring to procure an uncertaine remedy, for the redrese thereof for the future, *Be it enacted* that it shall be lawfull for any person or persons conceiving the accompt of the phisician or chirurgeon unreasonable to arrest the said phisitian or chirurgeon to the generall or county court where the said phisitian or chiryrgeon shall declare upon his oath the true value, cost and quantity of the drugs administered, for which the court shall grant order against the plaintiff with fifty per cent advance, and such consideration for his care, visitts and attendance as they shall judge he hath deserved, and if it shall appear by evidence that the said phisitian or chirurgeon hath neglected his patient while he was under cure, the court shall censure him to pay so much as they in their discretion shall think reasonable.—Hening's *Statutes*, ii, 109.

Act III, April, 1692 (Hening's *Statutes* iii, 103), amended the Act of 1661-2, characterizing the "arrest" to court as "being in itselfe unreasonable," and permitting the court to increase the allowance for medicine, etc. In a later general law, relating to administration of estates (Hening's *Statutes*, iii, 379), courts were permitted to "put such a reasonable valuation upon the medicines administred, and the visits, attendance and other services performed, as to them shall seem meet and just."

ACT, CHAPTER X, AUGUST, 1736

An Act for regulating the Fees and Accounts of the Practicers in Phisic.

I, Whereas the practice of phisic in this colony, is most commonly taken up and followed, by surgeons, apothecaries, or such as have only served apprenticeships to those trades, who often prove very unskilful in the art of a phisician; and yet to demand excessive, and exact unreasonable prices for the medicines which they administer, and do too often, for the sake of making up long and excessive bills, load their patients with greater quantities thereof, than are necessary or useful, concealing all their compositions, as well to prevent the discovery of their practice, as of the true value of what they administer: which is become a grievance, dangerous and intolerable, as well to the poorer sort of people, as others, and doth require the most effectual remedy that the nature of the thing will admit:

II, *Be it therefore enacted, by the Lieutenant-Governor, Council, and Burgesses, of the present General Assembly, and it is hereby enacted, by the authority of the same*, That from and after the passing of this act no practicer of phisic, in any action or suit whatsoever, hereafter to be commenced in any court of record in this colony, shall recover, for visiting any sick person, more than the rates hereafter mentioned: that is to say,

	l.	s.	d.
For every visit, and prescription, in town, or within five miles,	00	5	00
For every mile, above five, and under ten,	00	1	00
For a visit of ten miles,	00	10	00
And, for every mile, above ten,	00	00	06
With an allowance for all ferriages on their journeys.			
		l.	s.
To Surgeons, For a Simple fracture, and the cure thereof,	02	00	00
For a compound fracture, and the cure thereof,	04	00	00
But those persons who have studied phisic in any university, and taken any degree therein, shall be allowed,			
		l.	s.
For every visit, and prescription, in any			

town, or within five miles,	00 10 00
If above five miles, for every mile more, under ten,	00 1 00
For a visit, if not above ten miles,	1 00 00
And, for every mile, above ten,	00 1 00
With an allowance of ferriages, as before.	

III, And to the end the true value of the medicines administered by any practicer in phisic, may be better known, and judged of, *Be it further enacted, by the authority aforesaid,* That whenever any pills, bolus, portion, draught, electuary, decoction, or any medicines, in any form whatsoever, shall be administered to any sick person, the person administering the same shall, at the same time, deliver his bill, expressing every particular thing made up therein; or if the medicine administered, be a simple, or compound, directed in the *dispensatories*, the

true name thereof shall be expressed in the same bill, together with the quantities and prices, in both cases. And in failure thereof, such practicer, or any apothecary, making up the prescription of another, shall be nonsuited, in any action or suit hereafter commenced, which shall be grounded upon such bill or bills: nor shall any book, or account of any practicer in phisic, or any apothecary, be permitted to be given in evidence, before a court; unless the articles therein contained, be charged according to the directions of this act.

IV, *And be it further enacted, by the authority aforesaid,* That this act shall continue and be in force, for and during two years, next after the passing thereof, and from thence to the end of the next session of assembly.—Hening's *Statutes*, iv, 509.



## SOME ENGLISH WORTHIES OF SCIENCE OF INTEREST TO OPHTHALMOLOGISTS\*

By BURTON CHANCE, M. D.

PHILADELPHIA, PA.

WHEN the invitation to address you was received, I was immersed in the recent publications on the study of color vision, in the preparation of the annual contribution of that chapter to *Ophthalmic Literature*. The honor of being asked to visit you was too great for me to refuse, and yet, what subject to choose to present to you was a problem I could not then readily solve.

In one's studies in the still unsolved enigma of color vision, certain men's names occur and recur, again and again, so that from iteration one inevitably links a name with a subject until the name becomes almost an abstraction. And yet, as one goes on, from time to time, one is compelled to ask, "Of what manner of man was he who discovered the 'Properties of Light', or he, who helped to define those properties?" Or, again, "that one who failed by reason of his own defect, to see certain of those properties?" And, "Who was he, who, for all time, set the basis upon which has been built all effort for the understanding of how and by what means these properties are perceived by our senses?"

Because I have had to satisfy my own longings, I come before you with the thought that perhaps you too have asked these questions and are willing to contemplate for a few moments certain aspects of the lives and works of some of the English worthies of science who are of interest to ophthalmologists.

It will be interesting, as we go along, to note that although that discovery has been of inestimable value, for which we ophthal-

mologists honor each of whom we shall speak, yet, it may be that that great thing was only one of the many discoveries which he made, while in his other subjects he stands supreme and the principles which he formulated have stood the test of time. Let us then, for a little while, dwell with Sir Isaac Newton, William Wollaston, John Dalton and Dr. Thomas Young, each one of whom possessed character and personality which made him an outstanding individual in his generation. I will not do more than refer to their discoveries or observations in the optical sciences, for those are already well known to you, but shall tell rather of their usefulness in other fields of science.

### SIR ISAAC NEWTON

On Christmas day, of the eventful year 1642, the first year of the "Great Rebellion," while all England was in the throes of civil war, there was born, at the lonely manor farm of Woolsthorpe, a hamlet in the parish of Colsterworth near Grantham, in Lincolnshire, a tiny and feeble baby, Isaac Newton, destined to wrest from Nature her secrets and to claim for man greater benefits through Peace than were ever adjudged by the fortunes of War, and to win for himself the title of England's greatest natural philosopher.

His family had possessed the small estate for more than a hundred years; and his father had died there a few months after his marriage to Harriet Ayscough, and before the premature birth of his son. The widow married again three years later, and moved away leaving her weakly child, who had not been expected to live through his earliest infancy, under the charge of her mother. Sir Isaac used to relate he had often heard his mother say, when he

\*An address delivered before the Section on Ophthalmology of the Medical Society of the District of Columbia in Washington, Friday, February 4, 1921.

was born he was so little that they might have put him into a quart mug. Yet that frail tenement which seemed scarcely able to imprison its immortal mind was destined to enjoy a vigorous maturity, and survive even the average term of human existence.

Newton's education was commenced at the parish school, and when he was about twelve years old, he was sent to Grantham Grammar School for classical instruction. After the free, cheerful life of the farm at Woolsthorpe he found school tiresome and dull; lessons bored him, and he sank steadily to the bottom of his class. Here he might have remained, lonely and disgraced, had not a spiteful schoolfellow given him a severe kick in the stomach. The challenge seemed to waken Newton's spirit. He turned upon his enemy, and fought till he had gotten the victory. This physical contest, in which he had hardly hoped to come off triumphant, roused his ambitions in other directions. He determined that if his body were weak he would rule by his mind. The books that he had tossed into a corner were now picked up and studied. He was fond of drawing and sometimes wrote verses. Increased knowledge soon made him love learning, and before he left the school he had won the coveted post of head boy.

The peculiar bent of his mind soon showed itself in his recreations. While other boys were playing games, Newton would busy himself with mechanical contrivances; among these was a model of a windmill, turned either by the wind, or by a mouse, which he called the miller, enclosed in it; a carriage, moved by the persons who sat in it; and a water clock, which was long used in the family of Mr. Clarke, an apothecary, with whom he boarded at Grantham. This was not his only method of measuring time; the house at Woolsthorpe, whither he returned at the age of fifteen, long contained sundials made by him during his residence there. Sometimes a little group of schoolfellows would gather around him looking with interest at his clever little contrivances, but, as a rule, they found him dull

and silent, and they thought him stupid in his dislike of games. So he became a somewhat lonely schoolboy, and, when his mother, who had returned home again a widow, with three children, suggested that as he was nearly fifteen he should come home to help with the duties of the farm, he made no objection.

For a time he went to and from market at Grantham, carrying eggs and cheese, under the guidance of a farm servant. But the eggs and cheese were left to look after themselves on the market stall, while Newton passed his time in reading, sometimes by the wayside, sometimes at the house of Mr. Clarke, the apothecary. His mother no longer opposed the evident tendency of his disposition and agreed that it was quite useless trying to make him a farmer. He returned to school at Grantham, and, when an uncle, his mother's brother, who had been at Cambridge, suggested that the boy should be sent to college, she made up her mind to try this plan of ending the difficulties. The news enraptured him, and with a heart full of joyous hope, he entered Trinity College, Cambridge, in 1660, in his eighteenth year. Cambridge was consequently the real birthplace of Newton's genius. Here he at once found himself in the midst of friends. He delighted in the air of learning which filled the University, and he set himself to his studies with such enthusiasm that very soon he had made himself known as a scholar among the rest of the undergraduates. To him, the hard facts of mathematics were more entrancing than any other study, and he eagerly devoured every book on the subject upon which he could lay his hands. Euclid came his way, but he found it so easy that he laid it by as "a trifling book," and threw himself into Descartes' "Geometry." Before long, he began to make observations for himself, and he set himself to calculate and explain natural phenomena, such as the yellow halos often to be seen round the moon. In 1665 he took his degree of Bachelor of Arts, and in 1666, in consequence of the breaking out of the

Plague, he was obliged for a time to quit Cambridge. In 1668 he was made Master of Arts, and later a Senior Fellow, when he was not more than twenty-three years old.

This change of residence interrupted the optical researches which he had undertaken in which he had already laid the foundations of his great discoveries later. In 1664 he acquired a prism with which, in 1666, he decomposed light into the colored rays of which it is compounded, and, having ascertained the principal cause of the confusion of the images formed by refraction, he had turned his attention to the construction of telescopes which should act by reflection and be free from this evil. He had not, however, overcome the practical difficulties of his undertaking, when his retreat from Cambridge for a time stopped his train of experiments and inventions.

On quitting Cambridge, Newton returned to Woolsthorpe, where his mind was principally employed upon the system of the world. The theory of Copernicus and the discoveries of Galileo and Kepler had at length furnished the materials from which the true system was to be deduced. The existence of a central force had been surmised, and the law of action guessed at; but no proof had been given of either and little attention had been awakened by the conjecture. Yet Newton's discovery was quite independent of any speculations of his predecessors. The circumstances attending it are comprised in the well-known story of the falling apple.

Three years later he was back at Cambridge with all the distinction of a "Fellow." From this date his fame grew rapidly, and he attracted such attention that soon the other members of the University talked about him as "an unparalleled genius."

In 1668 he completed his first reflecting telescope, with which he observed Jupiter's satellites. In a variety of ingenious and interesting experiments where a spectrum was produced by sunlight refracted through a prism, in a darkened room, he was led to the conclusion that rays of light which differ

in color differ also in refrangibility. This discovery enabled him to explain an imperfection of the telescope, which had not till then been accounted for. The indistinctness of the image formed by the object-glass was not necessarily due to any imperfection of its form, but to the fact of the different colored rays of light being brought to a focus at different distances. He concluded rightly that it was impossible for an object-glass consisting of a single lens to produce a distinct image. He went further, and too hastily concluding from a single experiment, that the dispersive power of different substances was proportional to their refractive power, he pronounced it impossible to produce a perfect image by a combination of lenses. This conclusion, since proved erroneous by the invention of the achromatic telescope, turned Newton's attention to the construction of reflecting telescopes; and the form devised by him is the one which, at later periods, proved so useful in astronomical researches.

In 1669 a professorship fell vacant and he was offered the post. He accepted it gladly, and began a series of marvelous lectures on "Optics." After this, outside recognition was not slow in coming, and he entered upon a brilliant career of discovery. On January 11, 1672, Newton was elected a Fellow of the Royal Society, a gathering founded at the time of the Restoration.

Membership in the Royal Society gave Newton opportunities for explaining his theories to men of understanding. He was pleased at his election and he wrote to the Secretary that "he would endeavor to show his gratitude by communicating what his poor and solitary endeavors can effect towards the promoting of philosophical design." The promise was soon fulfilled, for, early in the February following his election, the Secretary received a letter from Newton containing his "New Theory about Light and Colors," which gave an account of the experiments with the prism in 1666. The experiments showed conclusively that "Light consists of Rays differently refrang-

ible"; that "Colors are not Qualifications of Light derived from Refractions of Natural Bodies, but original and connate properties, which in divers Rays are divers . . . The least refrangible rays are all disposed to exhibit a red color; the most refrangible rays are all disposed to exhibit a deep violet color"; while "White light is ever compounded, and to its composition are requisite all the aforesaid primary colors mixed in proper proportion." It was ordered that "the author be solemnly thanked for this very ingenious discourse, and be made acquainted that the society thinks very much of it."

Newton did not attend the meetings of the Royal Society until many years after his election. His contributions were solely by letters to the Secretary, Henry Oldenburg. His election to full Fellowship took place in February, 1675. He had expressed a wish to resign only a few days before his election because he was pecuniarily unable to pay the weekly dues of one shilling; and the distance to London from Cambridge, where he resided, was too costly for him to undertake. Moreover, he had expected that he would have to vacate his fellowship owing to his not being in holy orders. The difficulty was solved by a patent from the King permitting him as Lucasian professor to hold a fellowship although he was a layman.

As Newton's fame increased, he became more and more involved in outside discussions. "I see," he said, "that I have made myself a slave to philosophy." But his natural courtesy made him weary himself out in explaining point after point to his critics, even at a time when he was greatly harassed by the lack of money for everyday affairs. Happily this last difficulty was set right by the University, which might well cherish a spirit of such clear genius. From 1666 till 1686 he was busy with problems about the laws of gravity. He unfolded his ideas to Sir Christopher Wren, Halley, and Hooke, who often discussed with care and enthusiasm points which were far beyond the grasp of the ordinary citizen.

The Great Plague and the Great Fire ravaged the City of London; Parliament was torn with struggles over the Bill to exclude the Duke of York as a Catholic from the succession to the throne. Statesmen rose and fell. Charles II died, and James II succeeded, and all this time Newton was busy getting ready his great treatise.

In those years of study and deep thought, Newton passed through the exaltation and the despair of genius seeking to give expression to some great truth. In all this he was helped by Halley, foremost among his admirers, the most generous and unselfish of disciples, the best and most affectionate of friends, who never lost heart, whose faith never wavered. On that April day in 1686, when the manuscript treatise, "*Philosophiæ Naturalis Principia Mathematica*," was laid open to the Royal Society, Halley's excitement almost equalled that of Newton; and well Halley might be, for it was he who tracked Newton to his College, who drew from him his great discoveries, and who generously gave him to the world. Congratulations soon poured in from the members eager to outdo one another in expressing their wonder at the lecture.

But there was one gloomy face among them in the person of Dr. Robert Hooke, who was almost seven years older than Newton, and was one of the original, unelected members of the Royal Society. He declared he had himself made the discovery, and had communicated it to Newton in correspondence with him in 1679; he, therefore, had at least expected to find his work mentioned in the treatise. Halley as usual rushed into the breach with the suggestion that Newton should write a preface, containing a reference to Hooke. At the same time he made it clear that he did not himself consider Hooke had any real claim. As for the Royal Society, he says in a letter to Newton:

I found they were all of opinion that nothing thereof appearing in print, nor on the books of the Society, you ought to be considered as the inventor. And if in truth, he (Hooke), knew it

before you, he ought not to blame any but himself for having taken no more care to secure a discovery which he puts so much value on.

Newton, however, was much distressed by the incident. No man was freer from an intention to snatch an idea from a colleague, and his intensely chivalrous nature shrank from the very thought of such a deed. After all these years of study, was he to find the guilt of his discovery rubbed off by the jealous complaints of a disappointed rival? He settled the matter, however, by adding to his work the following sentence: "The inverse law of gravity holds in all the celestial motions, as was discovered also independently by my countrymen, Wren, Hooke, and Halley." This satisfied everyone, and in 1687, the "Principia" was published. Halley paid all the expenses, he corrected the proofs; he laid aside his own work in order to press forward to the utmost the printing, lest anything should arise to prevent the publication.

During the latter part of 1692, and the beginning of 1693, Newton's health was considerably impaired, and he labored in the summer under some epidemic disorder. It is likely that the precise character or amount of his indisposition will never be discovered; but it seems, though the opinion has been much controverted, that for a short time it affected his understanding, and that in September, 1693, he was not in the full possession of his mental faculties. The disease was soon removed, and there is no occasion to suppose that it ever recurred. But the course of his life changed; and from this time forward he devoted himself chiefly to the completion of his former works and abstained from any new career of continued research.

After the publication of the "Principia," Newton took an active part in public affairs. On two separate occasions he represented his University in Parliament. He had no desire to figure in the hot contests of the Commons, and he seldom spoke, though he conscientiously carried out the duties of his position. Here he met Charles

Montague, afterwards Earl of Halifax, who gave him the well-paid office of Warden of the Mint, in 1696. This left him enough leisure to carry on his studies with an easy mind, though he was not the man to accept a post without accepting all its responsibilities. While he was at the Mint, "he would be about the King's business" and he toiled long on its behalf, carrying out with extreme care and ability the important operations connected with a recoinage. Even so late as 1718 he presented reports to Parliament on the state of the coinage.

Still he found time to superintend the editions of his earlier works, which successively appeared with very material additions and improvements. The great work on "Optics" appeared for the first time in a complete form in 1704. His first lectures, read at the University of Cambridge in the years 1669, 1670 and 1671, were verbal only; and were read at the Royal Society in 1675. In this treatise are detailed such subjects as "Reflections, Refractions, Inflections and Colors of Light," and he lays down the "Laws of Refractions and Composition of Colors." In 1717 he issued a second edition. The copy which I have is a fourth edition printed in 1730, from a third edition prepared by Sir Isaac's "own Hand and left before his Death with the Bookseller." Newton was a student of alchemy, and he left a remarkable monument of his interest in theology, especially prophecy, in a work on the Prophecies of Daniel, and on the Apocalypse; a history of the Creation and a number of tracts.

Years passed by, bringing many honors to the boy who had once been meant to follow the quiet career of a farmer. In 1703 he was chosen President of the Royal Society, and he was annually reelected to this office during the remaining twenty-five years of his life. In 1705 he was knighted by Queen Anne, upon her visit to Cambridge. Newton accepted these signs of respect with the frankness of a child. His natural sweetness of temper made him grateful for every favor, but he was never deluded into

mistaking the tawdry for the real. Nothing shook his devotion to science, and to the last he found his greatest pleasure in working out problems. All the world heaped compliments upon him. He recognized the kindness which prompted them, but his simplicity remained untarnished. "I know not what I may appear to the world," he said not long before he died, "but to myself I seem to have been only like a boy playing on the seashore, diverting myself now and then finding a smooth pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me." He declared that whatever service he had done to the public was not owing to any extraordinary sagacity, but solely to industry and patient thought.

Newton's life in London was one of much dignity and comfort. He was courted by the distinguished of all ranks, and particularly by the Princess of Wales. Newton's liberality to others was almost boundless, yet he died rich. His domestic establishment was liberal, presided over by his step-niece, Mrs. Barber, a woman of much beauty and talent. He died without a will; his property descended to the grandchildren of his mother and to Mrs. Barber, who married Sir Isaac's assistant and successor at the Mint. Newton has been described as in person not above the middle size; of a courtly and gracious aspect with a fine head of silvery hair. He never wore spectacles, and had lost only one tooth even at the day of his death. In manners his appearance was usually untidy and slovenly. Many stories have been told of his extreme absence of mind when occupied with his work.

With the exception of the attack in 1693, Newton's health had usually been very good. He suffered much from stone during the last years of his life. He was laid up with inflammation of the lungs and gout in 1725, but was better after this for some time. His mental faculties remained in general unaffected, but his memory was much impaired. In 1726 appeared the third edition of the "Principia." From the year 1725 he lived

at Kensington, but was still fond of going to London occasionally, and visited it on February 28, 1727, to preside at a meeting of the Royal Society. The fatigue appears to have been too great, for the disease attacked him violently on March 4th, and he lingered in great suffering till the 20th, when he died, aged eighty-five years. One of the finest geniuses England has ever produced and one of the most simple-hearted. He was buried with great pomp in Westminster Abbey, where there is a monument to his memory.

Many admirers of Sir Isaac Newton have asserted that his was the most gigantic intellect ever bestowed on man. It is true he discovered the law of gravitation, and by it explained all the broader phenomena of nature, such as the movements of the planets, the shape and revolution of the earth, the succession of the tides, yet he only demonstrated mathematically Copernicus' assertion that the planets moved. Newton should not be regarded as an isolated phenomenon, a genius but for whom the world would have been in darkness. In all his labors he was but following the spirit of the times. The love of Science was abroad, by other men who had been working along similar lines. And, today, many of the problems which engaged them are as much unsolved as they were by Sir Isaac and his associates. An estimate of his genius is impossible. The inscription of his monument in Westminster Abbey ends: "Let Mortals rejoice that there has existed such and so great An Ornament of Human Nature."

#### WILLIAM HYDE WOLLASTON

Among the many eminent persons educated at the famous Charterhouse, not the least distinguished was William Hyde Wollaston, one of the ablest and most renowned of English chemists and natural philosophers. He was born at East Dereham, in Norfolk, on August 6, 1766. He was the second son of the seventeen children of the Rev. Francis Wollaston, rector of Chiselhurst, and an ardent astronomer.



Wollaston was educated first at a private school, and then at Charterhouse, and completed his education at Caius College, Cambridge, which he entered when only sixteen years of age. He did not graduate in Arts, but, with a view of practicing medicine, proceeded to the degree of M.B., in 1787, gaining a fellowship in the same year, which he retained for the rest of his life, being the Senior Fellow at Caius at his death. He held the offices of Greek and Hebrew lecturer. In 1793 he received the degree of M.D., and in 1795 he became a Fellow of the Royal College of Physicians.

He first established himself as a physician at Bury St. Edmunds, in Suffolk, but meeting with little encouragement, removed to London, where, making but little way, and in 1800, failing to obtain a vacant physicianship at St. George's Hospital, he abandoned the profession, vowing "never more to write a prescription, were it for his own father," and determined to devote himself wholly to scientific research. For several years he had been interested in various branches of natural sciences, and, as that interest had been increasing, his abandonment of medicine proved ultimately most beneficial, leading him rapidly to fame and fortune; for unlike many eminent investigators of nature's laws and phenomena, he combined the "genius of the philosopher with the skill of an artist," and succeeded in making industrial applications of several of his important discoveries.

His researches were pre-eminently fruitful in the science of chemistry, but they diverged on all sides into physiology, pathology, optics, acoustics, mineralogy, crystallography, astronomy, electricity, physics, mechanics, and botany, and even into art. In all he published fifty-six papers, almost everyone of which marked a distinct advance in the particular science concerned, and their publication placed him among the foremost scientific men of Europe. The majority were read before the Royal Society and appear in the *Philosophical Transactions*. He devoted much attention to the

affairs of the Royal Society of which he was elected a fellow in 1793, and was made secretary in 1806. In 1823 he was elected an associate of the French Academy of Science.

The influence of Wollaston's medical training is seen in his first paper, read in 1797. It is on "Calculi," and in it he showed that in addition to calculi consisting of uric acid, calculi of the bladder might consist of calcium phosphate, magnesium ammonium phosphate, and calcium oxalate, or, a mixture of these, forming the "fusible" calculus. In his later analyses he found, in 1810, "cystic oxide," now called cystin. He thus practically exhausted the subject and rendered rational treatment possible. He also investigated the composition of prostatic and of gouty calculi. In the Croonian lecture of 1809 he showed in a strikingly simple and ingenious way, by means of the muscular murmur, that each muscular effort, while apparently simple, really consists of contractions repeated at intervals of one-twentieth or one-thirtieth of a second. In May, 1824, he gave an ingenious explanation of the apparent direction of the eyes in a portrait.

In mineralogy he made a specialty of the platinum metals, and it was he who discovered in platinum the two new metals, palladium and rhodium. Within five years he had discovered a process for making platinum malleable, which brought him a fortune of almost £30,000. The process was kept secret, until disclosed in a paper published after his death.

When Dalton's atomic theory was first clearly enunciated, in 1807, Wollaston accepted it at once and tried to convert Sir Humphrey Davy, the chief of English scientists, but in vain. In a paper on "Super-acid or Sub-acid Salts," Wollaston afforded a most powerful support to Dalton's atomic weights by the promulgation of the doctrine of "equivalents," which were intended to express the bare facts of quantitative analysis.

In optics, he described, in 1802, the total reflection method for the measurement of

refractivity. It was in this paper that he drew attention to the dark lines in the solar spectrum. Of these lines, of which there are seven, since known as "Fraunhofer's lines," he regarded the most prominent as the natural boundaries or dividing lines of the pure simple colors of the prismatic spectrum, which he supposed to have four primary divisions, thus separating one from another. It was Wollaston who discovered the invisible rays beyond the violet.

Wollaston contributed various papers concerning theoretical and physiological optics. He adopted the wave theory of light, which at the beginning of the century was revived and applied to the explanation of the "interference phenomena," promulgated by his friend, Thomas Young. Among his papers may be mentioned those dealing with "Sounds Inaudible to Ordinary Ears"; and, "The Comparison of the Light of the Sun with That of the Moon and the Fixed Stars."

As an inventor of optical instruments, Wollaston ranks very high. Of these, the most important is his reflecting goniometer, with which to measure the angle contained between the two faces of a crystal, thus giving to crystallography a means for certainty and precision. In 1803, he invented "periscope," concavoconvex spectacles, which he found useful when oblique vision is necessary. And, in 1807, he patented the camera lucida which proved of the greatest value in surveying, in copying drawings, and in drawing objects under the microscope. It was through his desire to fix the image of the camera lucida, that, later on, led Talbot to his discoveries in photography. In 1812 Wollaston described a periscope camera obscura and microscope, providing for specially distinct vision with a wide aperture. In a posthumous paper, published in 1829, was described a microscopic doublet still used in its original form as the objective of the compound microscope.

In 1814 Wollaston and Smithson Tennant, while investigating the subject of gas explosions, discovered that explosions will

not pass through a small tube; a fact which was utilized independently by Davy in his safety lamp, in 1815.

He did much to establish the important physical principle that "galvanic" and "frictional" electricity are of the same nature; and he demonstrated that the action of the voltaic cell was due to the oxidation of the zinc.

In 1814 Wollaston suggested, in evidence before a committee of the House of Commons, the replacement of the various gallons, then in use, by a gallon containing ten pounds of water at a given temperature. This measure known as the "Imperial Gallon," was adopted in the Weights and Measures Act of 1824. In his connection with the efforts of various nations put forth at different times, to establish a uniform international standard, in view of the simplicity of the decimal system of weights and measures, it is of interest to learn that he was a member of the royal commission on Weights and Measures which rejected the adoption of that system, in 1819.

The majority of Wollaston's papers are short and apt in expression. "The most singular characteristic of Wollaston's mind," says Babbage, "was the plain and distinct line which separated what he knew from what he did not know: his predominant principle was to avoid error." This characteristic caution and sureness approaching infallibility struck Wollaston's contemporaries most forcibly, and they called him familiarly "the Pope," but the multiplicity of his discoveries and inventions shows that his caution was the self-imposed limit to a fertile and active imagination.

Beyond appearing at the meetings of learned societies, he took little part in public affairs. He lived alone, conducting his investigations in a deliberate and exhaustive manner, but in the most rigid seclusion, no person being admitted to his laboratory on any pretext. "Do you see that furnace?" he once said to one who had penetrated unbidden to this sacred ground. "Yes." "Then make a profound bow to it, for this

is the first, and will be the last time of your seeing it." On another occasion, a distinguished foreign philosopher expressed to him an anxious desire to see his laboratory. "Certainly," he replied; and immediately produced a small tray containing some glass tubes, a blow pipe, two or three watch glasses, a strip of platinum, and a few test



WILLIAM HYDE WOLLASTON  
(1766-1828)

bottles: this, of course, could not have been the whole of his apparatus. This anecdote may be taken as an illustration of his dislike to admit anyone to his workroom. The chief events in Wollaston's life were his discoveries which flowed in uninterrupted succession from 1800 down to the time of his death. His chief interest in traveling about England and when abroad was in seeing manufactures; and the machinery of Manchester left a most vivid impression upon his thoughts.

Dr. Wollaston was endowed with bodily senses of extraordinary acuteness and accuracy, and with great vigor of undertsanding.

His intimate friend, the Rev. Henry

Hasted, fellow of Christ Church, Cambridge; party to a friendship begun while at Bury St. Edmunds, which lasted to the end of his life, wrote that "Wollaston had extraordinary dexterity, the 'genius of the finger-tips,' and eyesight so keen that he could distinguish minute plants while on horseback."

In character he was especially self-contained: his chief object in life was to satisfy the questionings of his own intelligence. He was more than usually resentful of curiosity about his affairs; especially at the inquisition of the commissioners of income in 1800, when his usual calm was changed "into a fever of extreme indignation." He was a warm and genial friend. He refused in 1823 a request of his brother to procure for him a place in the customs, on the ground that he would lose his independence by soliciting a favor, but he inclosed a stock receipt for £10,000 in consols with his refusal. Towards the end of his life he took to fly fishing, with Davy and to shooting and sport in general. We get a pleasant glimpse of him in the "Life of Scott" by Lockhart who says, in describing an expedition from Abbotsford to see a coursing match, "Dr. Wollaston, with his noble serene dignity of countenance, might have passed for a sporting archbishop." He was never married.

Since 1800, Wollaston had suffered occasionally from partial blindness in each eye. In February, 1824, having noticed that at times he saw only half of every object with both eyes, he put forward his important theory of the "Semidecussation of the Optic Nerves," now an accepted fact. Toward the end of 1827, he was attacked by a numbness in the left arm and in July, 1828, the left pupil became insensible. He explained his symptoms to a medical friend as if they were those of another person, and, on hearing that they probably signified tumor of the brain, with an early termination, he set about revising and dictating papers on all his still unrecorded works. Many of these were afterwards published in the *Philosophical Transactions*. Five papers by him were read during the

last session of the Royal Society in that year, in one of which he alludes affectingly to his illness, as obliging him to commit his observations to writing more hastily than he was wont.

Previous to his death, he invested £1,000 of stock in the name of the Royal Society, the interest of which he directed to be employed for the encouragement of experiments in natural philosophy. He had experiments carried on under his direction in a room adjoining his sick-room, for many days previous to his death, which took place on December 22, 1828, having just before worked out a sum to show



JOHN DALTON  
(1766-1844)

that, though speechless, he was still conscious. He was privately buried at Chiselhurst, in Kent; of which parish, his father had been rector.

#### JOHN DALTON

In imagination let us transport ourselves to the romantic "Lake Region," to Eaglesfield, near Cockermouth, in Cumberland, to the humble cottage of the weavers, Joseph and Deborah Dalton, to whom was born a son, John, destined to dominate the philosophical world.

Three children of the marriage lived to a good old age, three of them died early. The

three who lived were Jonathan, Mary and John. Jonathan was the eldest son, but where, in the family, John came, no one knows, for singularly enough, no register of his birth has been found. The Quakers do not practice any baptismal rites, although, as a rule, the births of their children are duly registered. There was, of course, no entry of the birth in the Parish Church books, and so the exact date of John's entrance into the world remained undiscovered, and was quite unknown to himself until after he became famous, when some inquiries at his birthplace elicited the fact that he probably first saw the light on the 6th of September, 1766.

John Dalton received his early education from his father and from John Fletcher, teacher of the Quakers' school at Eaglesfield, on whose retirement, in 1778, John himself started teaching. This youthful venture was not successful, the amount he received in fees being only about five shillings a week, so, after two years he took to farm work. But he had received some instruction in mathematics, and, in 1781, he left his native village to become an assistant to his cousin, George Bewley, who kept a school at Kendal. There he passed twelve years, becoming, in 1785, joint manager of the school with his brother Jonathan.

Their sister, Mary, acted as housekeeper, and their parents visited them from time to time, to bring home produce, usually accomplishing the distance of forty-four miles from Eaglesfield on foot in one day. About sixty pupils, of both sexes, attended including some boarders; and the profits reached one hundred guineas the first year. The masters were uncompromising in their discipline and somewhat over stern in punishment, although John was the milder of the two, and was, besides, too much absorbed in private study to look out for delinquencies. His progress may be judged from a syllabus of a course of lectures on natural philosophy, including mathematics, optics, pneumatics, astronomy and the use of globes, issued by him in October, 1787.

These lectures were repeated in 1791, when the price of admission was reduced from one shilling to sixpence.

About 1790 he seems to have thought of taking up medicine, but the project met with no encouragement from his relatives and he remained at Kendal until 1793, when he moved to Manchester where he spent the rest of his life.

Dalton read much in the twelve years he spent at Kendal. There was gathered the stock of knowledge which served as the basis of all his future researches. There also he acquired habits of close and meditative observation. He contributed solutions of problems and questions on various subjects to *The Gentlemen's Diary*, and *The Ladies' Diary*, and in 1787, he began to keep a meteorological diary in which during the succeeding fifty-seven years he entered more than 200,000 observations.

At Kendal, Dalton was singularly fortunate in securing the friendship of persons of similar tastes and character. In one instance, it was to a blind man that young Dalton was indebted for a close and valuable friendship. The importance which he attached to the assistance in his studies, and the aid in forming his habits of investigation which he obtained from blind Gough, Dalton acknowledged in the preface of his "Meteorological Observations and Essays," published in 1793:

To one person particularly, I am peculiarly indebted, not only in this respect but in many others; indeed, if there be anything new and of importance to science contained in this work, it is owing, in great part to my having had the advantage of his instruction and example in philosophical investigations.

He acquired with Gough's help a little Latin, French, and Greek, and studied the chief works of English mathematicians. Mainly through Gough's friendship, he was appointed in 1793, teacher of mathematics and the physical sciences in the new college of Manchester, where he chiefly resided during the remainder of his life, though

frequently employed, after 1804, in giving lectures on chemistry in several large towns. He made hygrometers of whip-cords and constructed a rude barometer and thermometer. Zoölogy and botany came in for a share of his attention, and he supplied butterflies and dried plants for the museum at Keswick.

"Meteorological Observations and Essays" contained the germs of his later discoveries, yet in spite of the originality of its matter, the book met with only a limited sale. In 1794 he was elected a member of the Manchester Literary and Philosophical Society, and a few weeks after the election on October 31, 1794, he communicated his first paper on "Extraordinary Facts Relating to the Vision of Colors," in which he gave the earliest account of the optical peculiarity known as Daltonism, or color blindness, and summed up its characteristics as observed in himself and others. Besides the blue and purple of the spectrum, he was able to recognize only one color, yellow or as he says in his paper, "That part of the image which others call red appears to me little more than a shade or defect of light. After that the orange, yellow and green seem one color which descends uniformly from an intense to a rare yellow, making what I should call different shades of yellow." He had discovered during his botanical studies his peculiarity to the hues of flowers. His defect was shared by his brother. A post-mortem examination in his own case showed his explanation, by a supposed blue tinge in one of the humors of the eye, to have no foundation in fact and was indeed erroneous. Mr. Ransome, who made the post-mortem, examined the lenses of Dalton's eyes and found them to be normal to a man of his age.

He communicated to the same society in March, 1799, "Experiments and Observations to Determine Whether the Quantity of Rain and Dew is Equal to the Quantity of Water Carried off by the Rivers and Raised by Evaporation; with an Enquiry into the Origin of Springs." The last point then much debated, was practically settled by

Dalton's conclusion that springs are fed by rain.

In the years 1808 to 1810, he published his "New System of Chemical Philosophy." Later on, he became the president of the Manchester Philosophical Society, a Fellow of the Royal Society, and a Member of the Paris Academy. Before the Manchester Society alone, he read no fewer than one hundred and sixteen papers, many of them of epochal importance. In 1833 he received a pension of £150, which was afterwards raised to £300. His fellow townsmen and friends collected £2,000 to raise a statue in his honor which was placed at the entrance of the Royal Institution in Manchester. Dalton was honored by the University of Oxford with the degree of D.C.L., and with LL.D. by Edinburgh. He was twice a Vice-President of the British Association.

In 1837 he had a shock of paralysis, which recurred in the following year and left him with broken powers. Impaired utterance hindered him from assuming the office of President of the British Association at Manchester in 1842. He had another fit in May, 1844, and made a last feeble record of the state of the barometer on July 26. On the following morning he fell from his bed in attempting to rise, and was found lifeless on the floor. He was in his seventy-eighth year. He lies buried in the cemetery in Manchester, while his memory has been kept green by statues and tablets, and various endowed scholarships.

A most amusing account of the incidents attending the presentation of Dalton at court, has been given by Babbage in his interesting book, "Scientific London":

Firstly, he was a Quaker, and would not wear the sword, which is an indispensable appendage of ordinary court-dress. Secondly, the robe of a doctor of civil laws was known to be objectionable on account of its color,—scarlet—one forbidden to Quakers. Luckily it was recollected that Dalton was afflicted with the peculiar color-blindness which bears his name, and that, as the cherries and the leaves of a cherry-tree were to him of the same color, the scarlet

gown would present to him no extraordinary appearance. So perfect, indeed, was the color-blindness, that this most modest and simple of men, after having received the doctor's gown at Oxford, actually wore it for several days in happy unconsciousness of the effect he produced on the street.

Professor Whewell reports having asked Dalton what the bright, scarlet gown which he wore resembled, and he pointed to some of the evergreen outside the window, and said, that to his eye their colors were quite alike. On the other hand, the lining of the gown, which was pink silk, he could not distinguish from sky-blue.

Dalton's chief physical researches were those on the constitution of mixed gases, on the force of steam, on the elasticity of vapors, and on the expansion of gases by heat. In chemistry, he distinguished himself by his progressive development of the Atomic theory, through which theory the science of chemistry has become revolutionized, and has yielded a greater number of valuable results than, perhaps, any other idea ever introduced into physical science.

Profound, patient, intuitive, Dalton had precisely the faculties requisite for a great scientific discoverer. In his habits, he was simple; in his manners, grave and reserved, but kindly, and distinguished by his truthfulness and integrity of character. He was described by Dr. Davy in the following unflattering terms:

Mr. Dalton's aspect and manner were repulsive. There was no gracefulness belonging to him. His voice was harsh and brawling; his gait stiff and awkward; his style of writing and conversation, dry and almost crabbed. In person he was tall, bony, and slender. Independence and simplicity of manner and originality were his best qualities. Though in comparatively humble circumstances, he maintained the dignity of the philosophical character.

In spite of these unflattering terms, which were doubtless more critical than unkindly, those who saw most of him loved him best, and his friendship once bestowed was inalienable.

Dalton was always unexceptionally dressed in Quaker costume, knee breeches, dark grey stockings, and buckled shoes. His broad brim beaver was of the finest quality, his white neck-cloth spotless, his cane, gold or silver headed. Many of his friends were impressed by the striking likeness of his broad, expansive head to the portraits of Newton, and the likeness observed during life became more remarkable in death.

THOMAS YOUNG

Professor Tyndall once said something to this effect: If a horizontal line were drawn from the top of Sir Isaac Newton's genius stretching to our own day, it would leave immeasurably below it every head that has since appeared excepting that of Thomas Young; and if it declined at all to reach his, the declination would be very slight!

Emerson says:

It is a curious fact that a certain enormity of culture makes a man invisible to his contemporaries. From time to time, in history, men are born a whole age too soon. Probably the men were so great, so self-fed, that recognition of them by others was not necessary to them.

Of no man who died in the nineteenth century is this remark truer than of Thomas Young, who may be styled, without exaggeration, the most learned, profound, variously accomplished scholar and man of science that has appeared in our age—perhaps, in any age.

Thomas Young was born at Milverton, in Somersetshire, on June 13, 1773. He was the eldest of ten children. For the greater part of the first seven years of his life he lived with his maternal grandfather. According to his own account, he could read with considerable fluency at the age of two, and under the instructions of his aunt and a village schoolmistress, he "read twice through the Bible and also Watts' hymns," before he attained the age of four. When not

quite seven years of age he went to a boarding school, where it appears he learned more by independent effort than under the guidance of the master. After leaving this school he lived at home for six months; but frequently visited a neighbor, a land surveyor, at whose house he amused himself



THOMAS YOUNG  
(1773-1829)

with philosophical instruments and scientific books. When nearly nine he went to another school at Compton, where he remained for four years, and read several Greek and Latin authors as well as the elements of natural philosophy from books lent him by the assistant master who appears to have been a mechanical genius; and he gave Young lessons in turning, drawing, bookbinding and the grinding and preparation of colors. Before leaving the school at the age of thirteen, Young had read six chapters of the Hebrew Bible.

The time is too limited for me to detail all with which this extraordinary boy was interested. He constructed a microscope; read Priestley's "Observations on Air," which introduced him to the subject of

chemistry. He learned a little French which enabled him to gain an elementary knowledge of Italian. While at home he pursued the study of Hebrew, and devoted his energies to turning and telescope making. Eastern languages received a share of his attention and by the time he was fourteen he had read a Persian grammar. Before the end of the next four years, Young had gained more or less acquaintance with fourteen languages. Whatever study he commenced he never abandoned, and it was by steadily keeping to this principle, a most important one in education, that he was accustomed, in after life, to attribute a great part of his success, both as a scholar and a man of science. His motto was "What one has done another can do."

When little more than sixteen years of age Young's studies were seriously interrupted by an illness of an alarming nature which seemed to "threaten consumption." By the maternal care of Mrs. Barclay, towards whose son Young stood as tutor and companion, aided by the medical advice of Baron Dimsdale, a former physician of the Empress Catherine of Russia, and also of his uncle Dr. Brocklesby, he was restored to health, though he was for a long time subjected to a rigorous diet; "strictly confined for two years, to milk, buttermilk, eggs, vegetables, and very weak broth."

I wish that I might have the time to read to you a fragment of an autobiography in a translation from a short account written in Latin, as a record of his studies as far as the end of his fourteenth year. It is in Peacock's "Life." From it one sees how precocious the lad was.

The character of Thomas Young has made a strong appeal to me since my early undergraduate days. I have taken the keenest delight in reading anything concerning him or his works. An engraving from Lawrence's portrait hangs over my desk—the handsome face charming my day's work today with even greater force than when I first looked on it. And I have prepared this sketch of his life through my

desire that others, who have not known of his life, might have some idea how truly great and yet how human Dr. Young was. I have dwelt at this length on the early years of his life only because of my endeavor to indicate how the future was foreshadowed in his youth. The last two months of 1791, he passed with his uncle, Dr. Brocklesby in London, by whom he was introduced to the most distinguished literary society of his day, among whom he was recognized as a classical scholar of no mean order.

In the autumn of 1792, Young, being then only nineteen years of age, went up to London for the purpose of studying medicine. He lived in lodgings in Westminster, and attended John Hunter's School of Anatomy. A year afterwards he entered St. Bartholomew's Hospital as a pupil and devoted himself systematically to the preparatory studies of his future profession. Giving himself with enthusiasm to the study of the eye and of vision, he embodied some striking original views in a memoir which was read before the Royal Society and published in their *Philosophical Transactions* for 1793. This paper, concerning the power of accommodation inherent in the eye was important, mainly because it was his first published paper on optical subjects. The merit of it was so great that it gained for its author the honor of membership in the illustrious Royal Society at the early age of twenty-one. He was soon after elected to be its corresponding secretary, a position which he filled with distinction for the rest of his life.

Young's paper no sooner appeared, than John Hunter claimed the discovery and announced it as his own, but Young was acquitted of the charge of plagiarism. As first stated, Young's idea suggested that accommodation was brought about by muscular action inherent within the lens. He had measured the anteroposterior diameter of his own eyes by means of a pair of compasses. He learned that when the eye was focused for different distances there was no change in the length of the axis. He



settled for all time that it is the crystalline lens which changes its form during adjustment; but he was wrong in supposing the fibers of the lens to be muscular. It was not till long after the time of Dr. Young that the complicated action was fully made out, though the change of form of the anterior surface of the lens which he discovered by noticing the changes in the positions of the reflections of a candle flame on the cornea and on the lens admitted of no dispute.

The tempting offer to become the private secretary of the Duke of Richmond and the advantages which it opened were declined by Young, who had a consciousness of his own powers. One of the reasons, which he alleged, being his regard for the Society of Friends, whose principles he considered inconsistent with the appointment of private secretary to the Master General of Ordnance. He preferred the laborious, but independent, career of the man of letters; he resolved, however, to continue his medical course.

Young chose to pursue his medical studies at Edinburgh and during his residence there he mixed largely in society, not merely amongst his fellow students, but among the professors of the University and the principal inhabitants of a city and neighborhood proverbial for hospitality. He began the study of music and took lessons on the flute and thoroughly mastered the theory of the one and to some extent the practice of the other. He took private lessons in dancing and repeatedly attended performances at the theater. He gave up the costume of the Society of Friends and in many ways departed from their rules of conduct, yet throughout this change in his life he retained his high moral principles as a guide of conduct, and appears to have acted from a firm conviction of what was right.

At the close of his studies in Edinburgh, he proceeded to Goettingen where in due time he took his degree of M.D., closely applying himself the while to music, dancing, horsemanship, drawing, history, philosophy, as well as to medicine. The subject

he selected for his public discussion, necessary for his degree, was "The Human Voice." According to his own account, this study of "Sound," laid the foundation of his subsequent researches in the undulatory theory of Light.

When first he tried to leap a fence on horseback he fell at ten paces. He remounted, and made a second attempt, was again unseated, but this time was not thrown farther than on the horse's neck to which he clung. At the third trial he succeeded, and he repeated his feats to an almost incredible extent even in the midst of consummate artists.

Those who are fond of drawing contrasts may on the one side represent to themselves the timid Newton never riding in a carriage, so much did the fear of being upset preoccupy him, without holding to the doors with extended arms; and on the other, his distinguished rival galloping on the backs of two horses with all the confidence of an equestrian by profession.

Almost immediately on his return to England he was admitted as a Fellow of Emmanuel College, Cambridge, in order to take his English degree of M.D. At that time there was no system of medical education in the University and the statutes required that six years should elapse between the admission of a medical student and his taking the degree of M.B. Young appears to have attracted little attention as an undergraduate in college. His course has been described by a tutor of Emmanuel:

He rarely associated with the young men of the college, who called him with a mixture of derision and respect, "Phenomenon Young," but he lived on terms with the Fellows in the Common Room. He had few friends of his own age or pursuits in the University. He would not converse with any one but as an equal. A famous Doctor, who was in the habit of making unopposed dogmatical observations was somewhat taken aback by Young's correction of a statement he had made, quoting his references. "A smart young man that," he admitted, when Young left the Combination Room.

His uncle, Dr. Brocklesby, dying about this time, Young inherited his house with the furniture, books, pictures, prints and about £10,000.

During his residence at Cambridge he availed himself of every opportunity of entering into general society, so much so, as sometimes to interfere with the prosecution of his studies, yet, "in his manners he had something of the stiffness of the Quakers remaining, and though he never said or did a rude thing, he never made use of any of the forms of politeness, not that he avoided them through affectation; his behavior was natural without timidity, and easy without boldness."

In the summer of 1798, while in London, a slight accident resulting in the fracture of one of the metatarsal bones compelled Young to keep to his rooms, and being thus forcibly deprived of his usual round of social intercourse he returned to his favorite studies in physics. He prepared a memoir entitled "Outlines and Experiments Respecting Sound and Light." Some of the conclusions and speculations, to which these investigations lead, are of great theoretical importance, not merely as tending to correct many prevalent errors and misconceptions respecting the propagation of sound, but especially as establishing the great principle of the interference of sounds, and the explanation of the phenomena of beats and of the grave harmonies which are founded upon it. A principle which speedily conducted him to the discovery of the kindred principle of optical interferences; "which has proved," says Sir John Herschel, "the key to all the more abstruse and puzzling properties of light and which would alone have sufficed to place its author in the highest rank of scientific immortality even were the other innumerable claims to such a distinction disregarded."

In a letter to Nicholson's *Philosophical Journal* for 1801, he made the first public announcement of the extension of the principle of interference from sound to light, and the consequent establishment of

its propagation by undulation. The first memoir, "On the Theory of Light and Colors," in which this discovery was developed, was read to the Royal Society, on the 12th of November. It was succeeded by a second, entitled, "An Account of Some Cases of the Production of Colors," in 1802, and by a third, in 1803, entitled "Experiments and Calculations Relative to Physical Optics." The publication of these memoirs constitutes the first great epoch in the history of his optical discoveries. After the completion of the first of these memoirs, which had employed so much of his time, and which gave rise to so many important speculations, Young established himself in London, attending the hospital very closely, and began the practice of his profession, at 48 Welbeck Street, where he remained for five and twenty years, spending his summers near Brighton, a place much visited by good society.

It was a fortunate circumstance for the fame of Dr. Young that he never gained much practice as a physician; and though some of the best years of his life were diverted to professional duties and occupations, he was enabled to devote many more to those literary and scientific pursuits in which few could compete with him. Some one has remarked that the practical withdrawal of Young from the scientific world during sixteen years was a great loss to the progress of natural philosophy, while the absence of that suavity of manner when dealing with patients which is so essential to the success of a physician prevented him from acquiring a valuable practice. In fact, Young was too much of a philosopher in his behavior to succeed as a physician; he thought too deeply before giving his opinion and diagnosis, instead of appearing to know all about the subject before he commenced his examination, and this habit which is essential to the philosopher does not inspire confidence in the practitioner.

Upon his "Memoir on the Mechanism of the Eye," he put forth all his powers, and he has quite justly been called the "Founder

of Physiological Optics." The optical and anatomical investigations which it contains are of no ordinary difficulty and importance, more especially the adaptation of the optometer, originally invented by Dr. Porter-

could not be seen equally clearly, simultaneously, but required separate focusing. And, he had noticed that near-sighted persons by tilting their glasses could correct a certain amount of astigmatism. He correctly observed, also, that inequalities in the radii of the crystalline lens accounted for some of the astigmatism present in eyes which could not be perfectly corrected by spectacles.

In 1808 Young accepted the office of Professor of Natural Philosophy at the Royal Institution. The lectures which he gave there were afterwards published, and were divided into three parts. The first including mechanics, theoretical and practical; second, hydrostatics, hydrodynamics, acoustics and optics; the third, astronomy, the theory of the tides, the properties of matter, cohesion, electricity and magnetism, the theory of heat and climatology. They form the most comprehensive system of natural philosophy that has ever been published in England. They are a mine of information, and it is well known that many important propositions and discoveries have been more or less clearly indicated in them which have been recognized or pointed out when other philosophers discovered them independently or announced them as their own. Young likened himself to Cassandra who always told the truth, but was seldom understood, and never believed.

It is not possible for me to do more than merely refer to the undulatory theory of light discovered and announced by Fresnel, the French engineer, who did what Young could not—make known Young's theories, and have them received by the scientific men of Europe—and who so handsomely acknowledged Young's primacy of discovery; while maintaining the independence and originality of his own methods. Those who desire to pursue the subject may do so in Young's own writings, or in the lucid statement of the whole matter in Whewell's "History of the Inductive Sciences."

Nor may I here enter into any detail of Young's "Theory of Color-Vision," except



SIR ISAAC NEWTON  
(1642-1727)

field for accurately measuring the focal distance of the eye both in the vertical and horizontal planes; the determination of the refractive power of a variable medium, and its application to the constitution of the crystalline lens; the indication of the nice and accurate adjustment of every part of the eye for viewing at the same time the greatest possible range of objects without confusion; the measurement of the collective dispersion of colored rays in the eye; and ingenious and multiplied experiments for ascertaining, in some cases beyond the reach of controversy, what parts of the eye are changed and what are not, when passing from the view of near, to distant objects, and conversely.

Young took advantage of his own near-sightedness to study the asymmetry of the dioptric system of the eye. With the phorometer he discovered that the cross lines

to state that he first explained color sensation as due to the presence in the retina of structures which respond to the three colors, red, green and violet respectively, and color blindness as due to the inability of one or more of these structures to respond normally to stimulus. Let this tribute from Helmholtz, who supported and extended Young's theory, from his lectures on "The Recent Progress on the Theory of Vision" suffice:

The Theory of Colors, with all its marvelous and complicated relations was a riddle which Goethe in vain attempted to solve; nor were we physicists and physiologists more successful. I include myself in the number; for I, long worked at the task without getting any nearer my object, until I, at last, discovered that a wonderfully simple solution had been presented at the beginning of the century and had been in print ever since for anyone to read who chose. This solution was found and published by the same Thomas Young, who first showed the right method of arriving at the interpretation of Egyptian hieroglyphics. He was one of the most acute men who ever lived, but had the misfortune to be too far in advance of his contemporaries. They looked on him with astonishment, but could not follow his bold speculations, and thus a mass of his most important thoughts remained buried and forgotten in the Transactions of the Royal Society, until a later generation by slow degrees arrived at the rediscovery of his discoveries, and came to appreciate the force of his arguments and the accuracy of his conclusions.

So much of Dr. Young's scientific work has been mentioned here because it was during his early years of professional practice that his most original scientific work was accomplished. In 1808 was published his famous Croonian lecture to the Royal Society "On the Functions of the Heart and Arteries," in which the laws regulating the flow of blood through the body are clearly stated. After two years tenure of the Natural Philosophy Chair at the Royal Institution, Young resigned because his friends were of the opinion that its tenure militated against his prospects as a physi-

cian. In the summer of 1802, he escorted the great nephews of the Duke of Richmond to Rouen, and took the opportunity of visiting Paris.

In March, 1803, he took his degree of M.B. at Cambridge; and, on June 14th, he married Eliza, daughter of J. P. Maxwell, Esq., whose country seat was near Farnborough. For sixteen years after his marriage, Young resided at Worthing during the summer, where he had a very respectable practice, returning to London in October or November.

He took his degree of M.D., in 1808, and soon after was admitted Fellow of the College of Physicians. In January, 1811, he was elected one of the physicians of St. George's Hospital, which appointment he retained for the rest of his life. In this capacity his practice was considerably in advance of the time, for he regarded medicine as a science rather than an empirical art, and his careful methods of induction demanded an amount of attention which medical students, who preferred the more rough and ready methods then in vogue were slow to give. The apothecary of the hospital stated that more of Dr. Young's patients went away cured than of those who were subject to the more fashionable treatment; but his private practice, notwithstanding the sacrifice he made, never became very valuable. He delivered a course of lectures at the Middlesex Hospital, but he had small audiences, as the tax which they made upon the brains of the hearers was too great for most students. He expanded them and published them in 1813 as an "Introduction to Medical Literature" — a work of great labor.

The last of his medical publications was "A Practical and Historical Essay on Consumptive Diseases," which appeared in 1815. It is a condensed and admirably arranged abstract of everything that had been said and done with regard to consumption. Knowing that the public is apt to hold in light esteem a professional man who concerns himself with studies and pursuits

apart from his special line, Dr. Young withheld his name from his published papers, whether original or translated, in general science. Later he was appointed on Government Commissions for various purposes, especially concerning the introduction of gas in London, the income from which rendered him more independent of his practice, and he became less careful to publish his scientific papers anonymously.

In the years between 1820 and 1825, he traveled on the Continent, meeting famous persons and returning visits. In the year 1828 he removed from his house in Welbeck Street to another in Park Square which he had built under his own directions and fitted up with great elegance and taste. He had studied from an early period of his life, to adapt his habits to those of cultivated and refined society, and found a greater relief from his severe studies in the lively conversation and elegant announcements of accomplished women than in the graver discussions of those who are brought into contact with each other by a common unity of scientific, literary or political interests. His language was correct and his utterance rapid. In his earliest writings his style was marked by an obscurity which became less as he developed. His lectures, on the contrary, were characterized as a "mine of good things happily expressed." In August, 1827, he was elected one of the eight foreign associates of the Academy of Sciences, at Paris, in place of Volta, the highest honor that could be conferred on a man of science.

In February, 1829, his health began to give way and by April his friends and physicians became alarmed at his symptoms. Though under the pressure of severe illness, nothing could surpass the kindness of his affection to all around him. He had completed all the works on which he was engaged with the exception of the rudiments of an Egyptian dictionary. He not only continued to give directions concerning it, but labored at it with pencil, when confined in bed as he was unable to hold a pen. He declared to one who would hinder him, that

he had never spent an idle day in his life.

His illness continued with some slight variations, but he was gradually sinking into greater and greater weakness, till the morning of the 10th of May when he expired without a struggle, having hardly completed his fifty-sixth year. The disease proved to be an ossification of the aorta, which must have been in progress for many years. His remains were deposited in the Parish Church at Farnborough.

As a physician, a linguist, and archaeologist, a mathematician, scholar, and philosopher in the most difficult and abstruse investigations, Thomas Young has added to almost every department of human knowledge that which will be remembered in after times. In a review of Peacock's "Life of Young," which was published in 1855, Milburn, in 1890, wrote:

When we consider the grandeur of his genius, the multifarious greatness of his works, the simplicity and sublimity of his character, we are amazed at the indifference of mankind which has suffered his name to rest in comparative obscurity.

For many years, Young's works were neglected by his countrymen. Up to 1860, few in England seemed to have remembered his contribution, "On the Mechanism of the Eye," which was published in the *Philosophical Transactions* in 1801. In those papers he described the various properties of the lens and demonstrated the contractility of the lens fibers. And, sad to tell, most ophthalmologists have learned of him through Tscherning's "Œuvres Ophthalmologiques de Thomas Young," a collection of translations made and edited with great sympathy, published in 1894. All of us know with what high praise Donders viewed Young's investigations into the mechanism of accommodation, and how strongly he attests the restatement by Helmholtz of Young's observation that it depended upon the change of form of the crystalline lens.

Young was well formed in person and took great delight in lively exercise. He was

always ready to take his part in a dance or a glee, or to join in any scheme of amusement calculated to give life and interest to a party. His colleagues at the Royal Institution regarded him as a most amiable and good tempered man, indeed, probably as a consequence of his early training his temper had always been remarkably even, and, in his friendships, and in his domestic life he was singularly happy.

From a short memoir written by a devoted, life-long friend, Mr. Gurney, founded upon an autobiography which Young had prepared, I will conclude with this passage:

To sum up the whole with that which passes all acquirements, Dr. Young was a man in all the relations of life, upright, kindhearted, blameless. His domestic virtues were as exemplary as his talents were great. He was entirely free from either envy or jealousy, and the assistance which he gave to others engaged in the same lines of research with himself was constant and unbounded. His morality through life had been pure, though unostentatious. His religious sentiments were by himself stated to be liberal, though orthodox. He had extensively studied the Scriptures, of which the precepts were deeply impressed upon his mind from his earliest years. And he evidenced the faith which he professed in an unbending course of usefulness and rectitude.

And, from the inscription on his monument in Westminster Abbey—

A man alike eminent in almost every department of human learning,  
Endeared to his friends by his domestic virtues,  
Honored by the world for his unrivalled acquirements,  
He died in the hope of the resurrection of the Just.

In my mind, I delight to muse over the time when Science was struggling to raise its head in the various countries. In England, by the time the truth of the discovery of America had become settled in men's minds as an accomplished fact, instead of seeking the "gold and spices of the East," to add to their luxuriousness, there arose the spirit of colonization with all its hardships and its freedom. I fancy that the sailing away of ships, to be lost in the West,

gave rise to the speculations which ended in Newton's conception of the shape of the world and its place among the planets; and, out of such speculations the world began to be, as it were, born anew.

When the dominating genius of Henry VIII, and the strong rule of Elizabeth had passed, their influence gave place to a period of transition from mediævalism to modern times. The "Period of the Stuarts," is one of unending and great fascination, in science as well as in literature and in politics. The study of "Science," as distinct from "Literature," was only in its infancy; it still held the allurements of a subject just becoming specialized. All sorts of wonderful ideas crowded in upon men's minds; theories, which for long had hung as hazy ideas in the air, now became proved facts, and the close of the Stuarts dynasty found the nation highly sensitive to new impressions, and that age is especially famous for its development of Science.

The years succeeding the accession of Charles II, were memorable years for scientists. England followed the example set by the continent of Europe, and the genius of the race for the moment expressed itself almost entirely in science. In the very year of Newton's birth, a group of thoughtful men met together once a week, despite the turbulence of Royalists, Independents, Roundheads and others, to discuss all sorts of subjects, from the circulation of the blood to the position of the planets. These meetings were continued uninterruptedly until, in 1662, Charles II, recognized the foundation of the Royal Society, and from that date Science became a separate, definite branch of knowledge.

It is to the fostering care of the spirit of the Royal Society that the science of ophthalmology owes its foundation in the understanding of the purposes of the eye—the organ of vision—as an optical instrument. And it is to the memory of four heroic workers who were Fellows of the Royal Society, that I would dedicate the time we have spent together to-night.

# THE EARLY HISTORY OF ANATOMY IN THE UNITED STATES

BY EDWARD B. KRUMBHAAR, PH. D., M. D.

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FROM THE LABORATORIES OF THE PHILADELPHIA GENERAL HOSPITAL

IN as young a country as the United States, it is a comparatively easy matter to trace the growth of a science from its earliest beginning, and medicine is no exception to this rule. Thus we know the name of the first physician in the first permanent settlement in this country;<sup>1</sup> the doctor who accompanied the Pilgrims on the Mayflower in 1620;<sup>2</sup> the first Zieckentroosters or visitors of the sick in the Dutch colony of New York;<sup>3</sup> the three Welsh physicians who in 1682 came with William Penn in the *Welcome* to found Philadelphia and his colony of Pennsylvania;<sup>4</sup> and the author of the first medical work published in the United States.<sup>5</sup> The health of the struggling young communities was necessarily cared for at first by the more educated leaders, by midwives, by visiting ship's surgeons and by the few medical practitioners that had come from the mother country as colonists. But from the earliest times the need for occasional post-mortem examinations and for learning the structure of the body from actual dissections ("Making an Anatomy"—in the quaint old term), rather than from book learning or didactic lectures, was well recognized. The difficulty of procuring anatomical material, which then existed throughout the civilized world, was most aggravated in the young, healthy and sparsely settled country; thus Eliot, the Apostle to the Indians, as early as 1647, expresses in a letter to Mr. Thomas Shepard, the Cambridge minister,<sup>6</sup> his desire that "our young Students in Physick may bee trained up better then yet they bee, who have only theoreticall knowledge, and are forced to fall to practice before ever they saw an Anatomy made, or duely trained up in making experiments, for we never had

but one Anatomy in the Country, which Mr. Giles Firman (Firmin) (now in England) did make and read upon very well." In passing, it might be noted that Mr. Firmin found the outlook for the practice of physies in the new country so discouraging that he returned to England to take up the more lucrative study of divinity! The apostle's desire seems to have carried weight, as we find the following resolution passed within a month by the General Court of Massachusetts: "We conceive it very necessary y<sup>t</sup> such as studies physick or chirurgery may have liberty to reade anatomy (*sic*) and to anatomize once in foure yeares some malefactor in case there be such as the Courte shall allow of."<sup>7</sup> In the same letter to Shepard, Eliot says, "I have shown them (i. e. the Indians) the anatomy of man's body," but Hartwell<sup>8</sup> thinks that Eliot probably never performed any dissections himself. The need for first-hand knowledge must have indeed been great—quackery was already rife, and the education of the practitioners often woefully lacking. Thus, in Judge Samuel Sewell's diary of September 22, 1676:<sup>9</sup> "Spent the day from nine in the morning with Mr. (Dr.) Brakenbury, Mr. Thomson, Butter, Hooper, Cragg, Pemberton, dissecting the middle-most of the Indians executed the day before. N., who taking the heart in hand, affirmed it to be the stomach." Packard<sup>10</sup> gives the record of six different autopsies reported in New England between the years 1674 and 1678, and Hartwell quotes from a Maryland Order of Council<sup>11</sup> what may well be the earliest autopsy performed in this country by legal direction. In 1691, the celebrated autopsy on Governor Slaughter of New York was made, which for a long time was erroneously considered to be the first re-

corded autopsy in this country. Governor Slaughter having incurred several severe enmities following the execution of a rioter, it was suspected that his sudden death might be due to poisoning. Dr. Johannes Kerfbyle,<sup>12</sup> assisted by five physicians, was therefore ordered by the Council to examine the body and reported that he "died of a defect in his blood and lungs

"for the instruction of the young men then engaged in the study of medicine." Walsh states that they had offered a private course in anatomy before this date, but I do not know on what authority this statement is based.

Laudable and necessary as such efforts were, however, their benefits were mostly individual and evanescent, and it is to a different source that we must turn for the work that may be said to have initiated the scientific study of anatomy in the American colonies. The credit for this achievement may fairly be given to Dr. Thomas Cadwalader, one of the most notable Philadelphia physicians of the eighteenth century.

Thomas Cadwalader<sup>14</sup> (1707-8-1779) was the son of John Cadwalader, who emigrated from Wales in 1689, and Martha the daughter of Dr. Edward Jones. Having studied in the Friends "Publick" School (now the Penn Charter School), he was apprenticed at the mature age of eighteen for two years to his uncle, Dr. Evan Jones. He is thus doubly directly connected with the founding of the city, through two great-grandfathers: John Jones, who came over with Penn in 1699 and Dr. Thomas Wynne, one of the original settlers, the father-in-law of his grandfather, Edward Jones. To complete his medical education, he was sent to the University of Rheims and to England, where he studied under the celebrated William Cheselden, of whom Pope wrote, "I'll do what Mead and Cheselden advise, to keep these limbs and to preserve these eyes." Here presumably he learned the art of dissection, which was soon to stand him in such good stead. Shortly after his return from Europe (probably in 1730), he was known to be "so proficient in dissection, at that time rare in Europe and unknown in America, that students and physicians alike urged him to give a public course of lectures on the cadaver." Caspar Wistar<sup>15</sup> says: "According to correct information I find that on his return to Philadelphia he made dissections and demonstrations for the instruction of the elder Dr. Shippen and some others, who had not



PORTRAIT OF THOMAS CADWALADER (1708-1779) IN POSSESSION OF THE PENNSYLVANIA HOSPITAL. THE ORIGINAL, BY CHARLES WILSON PEALE IN 1770, IS OWNED BY JOHN CADWALADER OF PHILADELPHIA.

occasioned by some glutinous tough humor in the blood, which stopped the passage thereof and occasioned its settling in the lungs." This, Walsh,<sup>13</sup> who gives an excellent description of the event, has ingeniously suggested to be the seventeenth century manner of describing a pulmonary embolism. From such accounts we may infer that in several of the American colonies at least, a post-mortem examination to determine the cause of death was not an uncommon occurrence in the seventeenth century. Of much later date (1750) was the well-known injection and dissection, by Drs. Thomas Bard and Peter Middleton of New York, of the body of Hermannus Carroll, an executed criminal,



been abroad." These demonstrations were given in a building on the back part of a lot on Second Street above Walnut, where later stood the old Bank of Philadelphia.<sup>16</sup> In Caspar Wistar's words, "this probably was the first business of the kind ever done in Pennsylvania." The impression that this event made in the mind of the elder Shippen was undoubtedly an important factor in sending his son to England for his medical education, which, as we shall later see, was the direct cause of the first scholastic teaching of anatomy in the American colonies.

Though nothing more is known of Cadwalader's anatomical dissections, he is known to have utilized his skill in this art throughout his career in the performance of autopsies. Thus, in his celebrated work on lead poisoning,<sup>17</sup> there are numerous notes of post-mortem observations and the "extraordinary case in physics" is a clinicopathological report of a peculiar bone

ful period of our history; nor to attempt to describe his personal charm, as exemplified in the well-known story of the demented Lieut. Bruluman in search of other game than that with which the Commons (now

A N

## E S S A Y

On the *WEST-INDIA**DRY-GRIPE S;*

WITH THE

METHOD of Preventing and Curing

T H A T

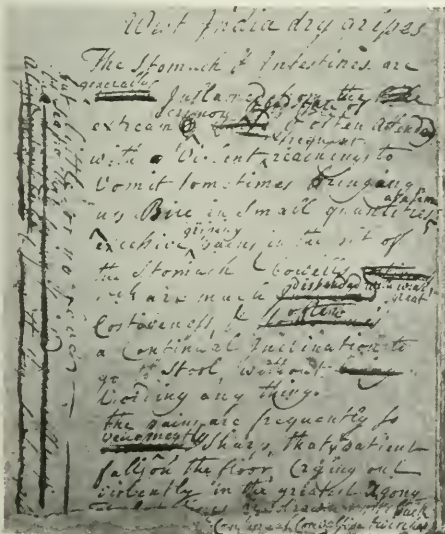
## CRUEL DISTEMPER.

To which is added,

*An Extraordinary CASE in Physick.**PHILADELPHIA:*Printed and fold by B. FRANKLIN.  
M.DCC.XLV.

TITLE PAGE OF CADWALADER'S "ESSAY ON THE WEST-INDIA DRY-GRIPE S." THE COPY IN THE LIBRARY OF THE COLLEGE OF PHYSICIANS IS UNIQUE IN HAVING TWO PREFACES.

City Hall Plaza) then abounded. One anecdote, recently told me by a descendant, I may be permitted to relate, as it has never to my knowledge appeared in print and throws an interesting light both on the man and his times. It seems that for some little time travelers along the Blockley (now Montgomery) Pike had been bothered by ghosts in the old Merion (Quaker) meeting churchyard (founded in 1683). Dr. Cadwalader therefore decided to investigate the



A PAGE OF THOMAS CADWALADER'S MANUSCRIPT OF "AN ESSAY ON THE WEST-INDIA DRY-GRIPE S."

disease in a cured diabetic, written much in the modern style. It is not necessary or appropriate in this place to enumerate the various distinctions and honors that came to him in his long career through an event-

problem by spending the night on the premises, which were some six or eight miles from town. When the white apparition of the ghost appeared the worthy doctor gave chase around the graveyard and finally caught him, when he turned out to be a harmless lunatic at large.

Cadwalader's achievements in dissection and in morbid anatomy were the more noteworthy on account of the low level on which medicine stood in the colonies in the first half of the eighteenth century. Quacks were said to "abound like the locusts in Egypt" and complaints about charlatanism are only too numerous in the writings of the time. It is to be feared that the scurrilous words of Douglass,<sup>18</sup> a notable Scotch physician, who settled in Boston in 1718, have more than a modicum of truth:

In our plantations, a practitioner, bold, rash, impudent, a liar, basely born and uneducated, has much the advantage of an honest, cautious, modest gentleman. In general, the physical practice in our Colonies is so perniciously bad, that excepting in surgery and some acute cases, it is better to let nature take her course than to trust to the honesty and sagacity of the practitioner; our American practitioners are so rash and officious that the saying of the Apocrypha may, with propriety, be applied to them; "He that sinneth before his maker, let him fall into the hands of the physician." Frequently there is more danger from the physician than from the distemper.

In the latter half of the century, however, things medical were taking a distinct turn for the better. Not only did the growing wealth and strength of the colonies permit an ever-increasing number of ambitious students to visit the schools of Vienna, London and Edinburgh, in order to secure a scientific foundation for their medical studies, but also by the French and Indian wars many medical men of superior education were brought to the colonies. In the words of Dr. Nicholas Romaine:<sup>19</sup>

The war which effected the conquest of Canada, was, perhaps, the first circumstance which materially improved the condition of medicine

in this State (New York). The English army employed for that purpose, left Europe, accompanied by a highly respectable medical staff, most of whom landed in the city of New York, and continued some years in the neighboring territories, affording to many young Americans opportunities of attending the military hospitals, and receiving such professional instruction as gave them afterward consideration with the public. The physicians and surgeons of the Anglo-American army gained the confidence of the public, by their superior deportment and professional information. The military establishments in this State, after the Canadian war, required medical and surgical attendants, so that the people had the benefit of their advice. In this manner a new order of medical men was introduced into the Community.

Without the aid of medical schools, those who could not afford to go abroad, and many who could, acquired their training through the apprentice system, a method that was not without its advantages and which was at this time extensively followed in Europe as well. The young aspirant, after serving an appropriate time under indenture as the physician's technical—and often menial—assistant, thus acquired considerable skill in medical practice and in the necessary adjunct of pharmacy, but had little opportunity to study the underlying sciences. That these apprenticeships were no sinecure is shown by John Bard's service with the churlish Dr. Kearsley for seven years, beginning when he was fourteen. Benjamin Rush started with John Redman at fifteen and served for six years, and James Lloyd of Boston served with Clark for five years, beginning at the advanced age of seventeen. Though not especially connected with the teaching of Anatomy, a word at this point as to the flourishing condition of medicine in the Southern colonies of the eighteenth century seems desirable. In Charleston, especially, Lining, Moultrie, Chalmers and Garden formed a noteworthy group and the last named, with Mitchell of Virginia, constituted two of the fourteen American colonial Fellows of the Royal Society.

The earliest printed announcement of lectures on anatomy in this country was apparently that of Thomas Wood, Surgeon, who placed the following advertisement in the *New York Weekly Postboy* of January 27, 1752:<sup>20</sup>

Whereas Anatomy is allowed on all Hands, to be the Foundation both of PHYSICK and SURGERY, and consequently, without SOME knowledge of it, no person can be duly qualified to practice either: This is therefore to inform the Publick, That a COURSE of OSTEOLOGY and MYOLOGY, is intended to be begun, some Time in February next, in the City of New Brunswick, (for which Notice will be given in this Paper, as soon as a proper number have subscribed towards it). In which Course, all the human BONES will be separately examined, and their Connections and Dependencies on each other demonstrated; and all the MUSCLES of a human BODY dissected; the Origin, Insertion, and Use of each plainly shown. This Course is proposed to be finished in the Space of a Month.

THOMAS WOOD, Surgeon.

Such Gentlemen who are willing to attend this Course, are desired to subscribe their Names as soon as possible, with Mr. Richard Ayscough, Surgeon, at New York or said Thomas Wood, at New Brunswick, paying at the same Time, THREE POUNDS, Proc. and engaging to pay the said Sum of Three Pounds more, when the Course is half finished.

N. B. If proper Encouragement is given in this Course, he proposes soon after, to go thro' a Course of ANGIOLOGY and NEUROLOGY; and conclude, with performing all the OPERATIONS of SURGERY, on a dead body: The Use of which will appear to every Person, who considers the Necessity of having (at least) SEEN them performed, before he presumes to perform them himself on any living Fellow Creature.

Although this advertisement was subsequently repeated on several occasions in the same journal, I have been unable to find the notice mentioned, so do not know whether one or both courses were given, or if begun, how long they were continued. Wood's lectures, if given, antedated by two years the better known course of lectures

on anatomy and comparative anatomy, given by William Hunter in Newport in 1754 to 1756. Hunter,<sup>21</sup> a Scotchman, born in 1720, was said to be a relative of his more famous namesake. Educated at Edinburgh under the elder Munro, and at Leyden, he came to Rhode Island in 1752 and quickly attained a position of prominence in the community. His medical library, at that time said to be the largest in New England, was mostly dispersed by accidents of the Revolution; but his manuscript lectures were still said to be in existence at a much later date, and his portrait still exists in the possession of a descendant of the same name, who is now employed in the United States Department of State.

While these sporadic efforts apparently complete the narrative of prescholastic instruction in anatomy in the American colonies, the record should not be considered discreditable in the light of the relatively immature state of that science in the home countries at that time.<sup>22</sup> Even on the Continent, where the study of Anatomy was most advanced, the *Theatrum Anatomicum* of Berlin was not founded till 1713 and the Vienna theatre in 1718, and the latter was practically without dissections till 1741. In Strasburg, Salzmänn had daily dissections with three weekly demonstrations in 1708; but Haller, in Tübingen, was forced to study on dogs, and in Paris, on one occasion, fled for his life from a body-snatching episode. The celebrated Albinus averaged but one dissection a year at Leyden, Friedrich Hoffmann but twenty in twenty-four years at Halle; while in Prague there were but three dissections between 1692 and 1712. The earliest chairs of anatomy in England were all founded in the eighteenth century (Edinburgh, 1705; Cambridge, 1707; Glasgow, 1718; the Oxford lectureship, 1750\*; Dublin, 1785).

\*According to A. Chaplin (*Contributions to Medical and Biological Research*, Dedicated to Sir William Osler, 1919, i, 16), the Lee lectureship in Anatomy at Christ Church, Oxford, was founded in 1762.

We now come to a more important and protracted effort in anatomical education, and of greater significance, as it led directly to the foundation of the first medical school in the American colonies. William Shippen, Sr., impressed with the advantages—denied to him—of a European education, and following the growing custom of the time, in 1758, sent his son, William, who had already studied physic with him for four years, to London to study anatomy with John Hunter and obstetrics with William Hunter, Smellie and McKenzie. In London young Shippen lived with John Hunter and worked in his home and in William Hunter's Theatre in Covent Garden, the Great Windmill Street School not being started until 1768. He became closely acquainted with the talented William Hewson, three years his junior, and the celebrated Quaker physician, John Fothergill, who had already evinced great constructive interest in the Quaker settlement of Philadelphia and especially in the newly founded (Quaker) Pennsylvania Hospital, the oldest general hospital in this country. Fothergill discussed with both Shippen and John Morgan, the desirability of establish-

of this gift and its influence on medical education has been so fully told elsewhere<sup>24</sup> that it need not be repeated here.

Shippen, after finishing his course under Cullen and Munro secundus and getting his degree at Edinburgh,<sup>25</sup> returned to Philadelphia in May 1762, and the same autumn began the successful course of anatomical lectures, which continued until interrupted by the Revolution in 1777. In the *Pennsylvania Gazette* of November 11, 1762, he issued the prospectus of his lectures, of which the introductory lecture was given at the State House on the 16th. Subsequent lectures were given in a building erected for the purpose in the rear of his father's residence on Fourth Street, and were doubtless largely based on the "curious Anatomical Casts and drawings, presented by the judicious and benevolent Doctor Fothergill," which the managers of the Pennsylvania Hospital generously loaned. Probably the skeleton presented by Deborah Morris to the Hospital in 1757, also played an important rôle; and in December the body of a negro who had committed suicide became available for dissection, and those of all criminals and suicides for some time thereafter.<sup>26</sup>

By the spring of 1765, Shippen's friend, John Morgan, was ready to return to America "to see whether, after fourteen years' devotion to medicine, I can get my living without turning apothecary or practicing surgery." But he had still weightier projects in hand, and before leaving Europe, he had already prepared a written Plan, which had the approval of the Hunters, Cullen, Fothergill and others, for the formation of a medical faculty in the flourishing young College of Philadelphia. This, with a letter of presentation to the Board of Trustees from Thomas Penn, proved so efficacious that on May 3, 1765, he was unanimously elected Professor of the Theory and Practice of Physic and the next September, in response to Dr. Shippen's "application" by letter, the latter was unanimously elected Professor of Anatomy and Surgery:



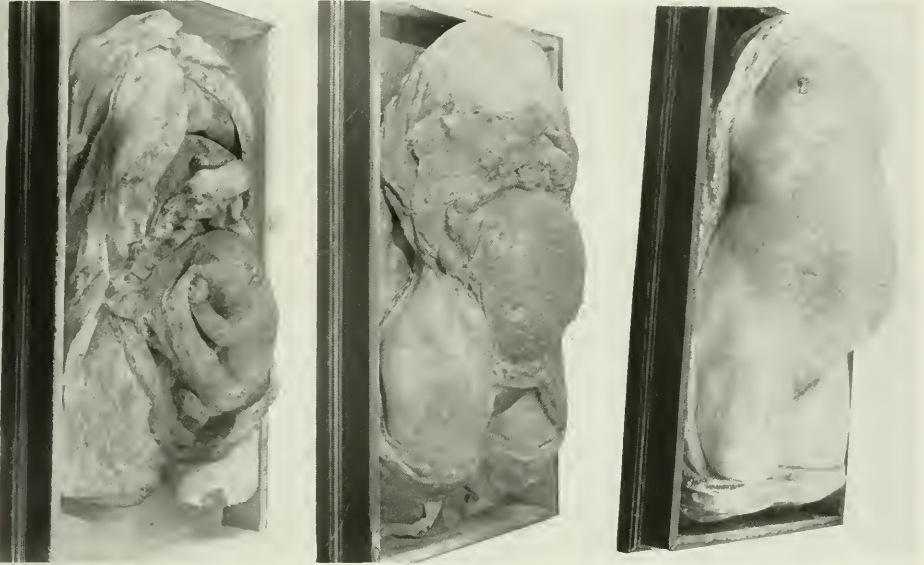
JOHN FOTHERGILL  
(1712-1780)

ing a medical school in the colonies, and probably had this in mind when, in 1762, he made his famous present to the Pennsylvania Hospital of the eighteen anatomical views and three cases of models.<sup>23</sup> The story

The instituting of medical schools in this country has been a favorite object of my attention for seven years past, and it is three years since I proposed the expediency and practicability of teaching medicine in all its branches in this city, in a public oration read at the State House, introductory to my first course of

14th, Shippen began the first course of lectures given in a medical school in this country. The joint announcement read as follows:

As the necessity for cultivating medical knowledge in America is allowed by all, it is



THE GYPSUM CASTS WHICH FOTHERGILL PRESENTED TO THE PENNSYLVANIA HOSPITAL.

Anatomy. I should have long since sought the patronage of the Trustees of this College, but waited to be joined by Dr. Morgan, to whom I first communicated my plan in England and who promised to unite with me in every scheme we might think necessary for the execution of so important a point.

I am pleased, however, to hear that you gentlemen, on being applied to by Dr. Morgan, have taken the plan under your protection and have appointed that gentleman Professor of Medicine.

A professorship of Anatomy and Surgery will be gratefully accepted by, gentlemen, your most obedient and humble servant.

WILLIAM SHIPPEN, JR.

Philadelphia, 17th September, 1765.

On September 26th, the prospectus of the newly founded Department appeared in the *Pennsylvania Gazette* and on November

with pleasure we inform the public that a Course of Lectures on two of the most important branches of that useful science, viz., Anatomy and Materia Medica, will be delivered this winter in Philadelphia. We have great reason, therefore, to hope that gentlemen of the Faculty will encourage the design by recommending it to their pupils, that pupils themselves will be glad of such an opportunity of improvement, and that the public will think it an object worthy their attention and patronage. In order to render these courses the more extensively useful, we intend to introduce into them as much of the Theory and Practice of Physic, of Pharmacy, Chemistry, and Surgery as can be conveniently admitted.

From all this, together with an attendance on the practice of the physicians and surgeons of the Pennsylvania Hospital, the students will be able to prosecute their studies with such advantage as will qualify them to practice

hereafter with more satisfaction to themselves and benefit to the community.

The particular advertisements inserted below specify the time when these lectures are to commence, and contain the various subjects to be treated of in each course, and the terms on which pupils are to be admitted.

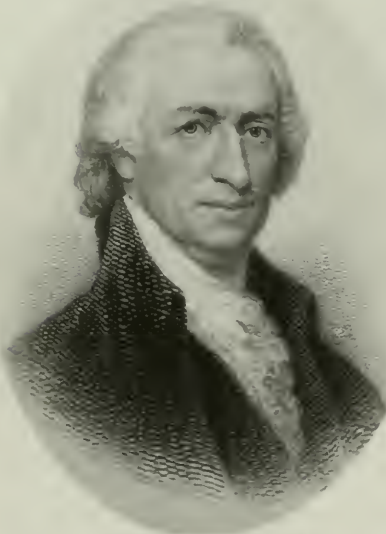
WILLIAM SHIPPEN, JR., M. D.

Professor of Anatomy and Surgery in the College of Philadelphia

JOHN MORGAN M. D., F.R.S., Etc.

Professor of Medicine in the College of Philadelphia

Dr. Shippen's course of anatomical lectures will begin on Thursday, the 14th of November, 1765; it will consist of about sixty lectures, in which the situation, figure, and structure of all parts of the human body will be demonstrated on the fresh subject, their respective uses explained, and their diseases, with the indica-



WILLIAM SHIPPEN, JR. (1736-1808), THE FIRST PROFESSOR OF ANATOMY IN BRITISH AMERICA.

tions and methods of cure, briefly treated of; all the necessary operations of Surgery will be performed, a course of bandages given; and the whole concluded with a few plain and general directions in the practice of midwifery. Each person to pay six pistoles.

Those who incline to attend the Pennsylvania Hospital and have the benefit of the curious anatomical plates and casts there, to pay six pistoles to that useful charity.

A course of lectures on the *Materia Medica* by John Morgan, M.D., etc. Price four pistoles.

This course will commence on Monday, the 18th day of November, and be given three times a week at the College, at three o'clock in the afternoon, till finished, which will last between three and four months.

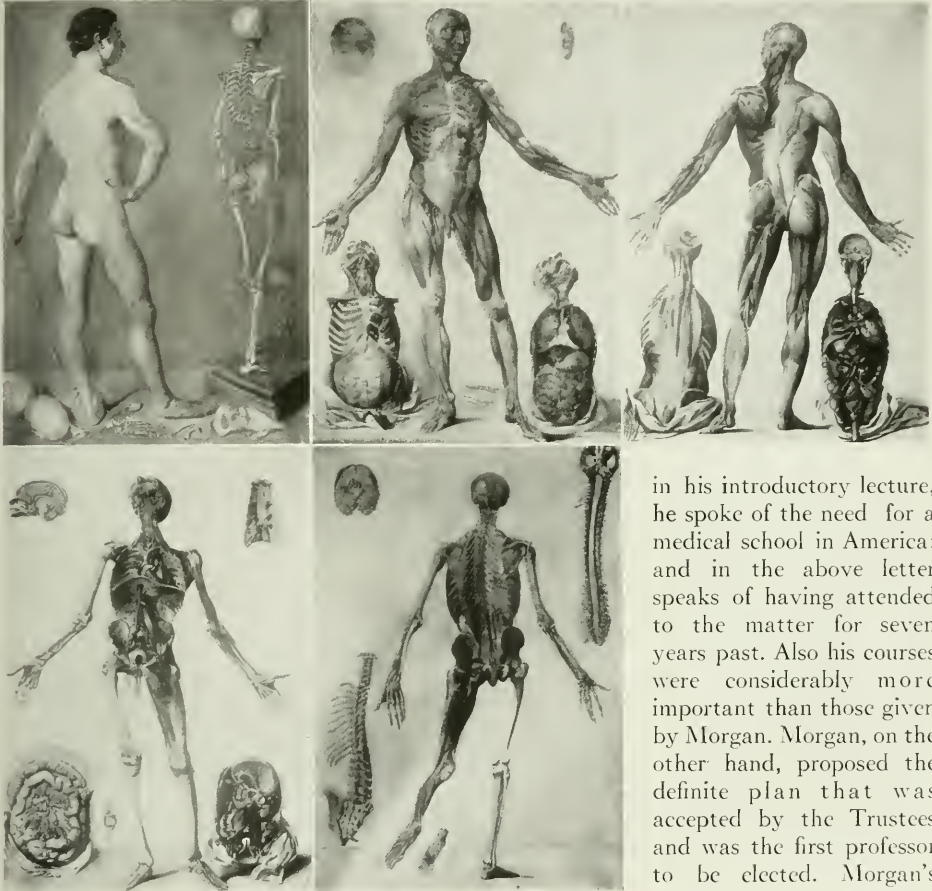
To render these lectures as instructive as possible to students of physic, the Doctor proposes, in the course of them, to give some useful observations on Medicine in general, and the proper manner of conducting the study of physic. The authors to be read in the *Materia Medica* will be pointed out. The various substances made use of in medicine will be reduced under classes suited to the principal indications in the cure of diseases. Similar virtues in different plants, and their comparative powers will be treated of, and an inquiry made into the different methods which have been used in discovering the qualities of medicines, the virtues of the most efficacious will be particularly insisted upon; the manner of preparing and combining them will be shown by some instructive lessons upon pharmaceutical chemistry. This will open to students a general idea of both chemistry and pharmacy. To prepare them more effectually for understanding the art of prescribing with elegance and propriety, if time allows, it is proposed to include in this course some critical lectures upon the chief preparations contained in the Dispensatories of the Royal College at London and Edinburgh. The whole will be illustrated with many useful practical observations on Diseases, Diet and Medicines.

No person will be admitted without a ticket for the whole course. Those who propose to attend this course are desired to apply to the Doctor at least a week before the lectures begin. A dollar will be required of each student to matriculate, which will be applied to purchase books for a medical library in the College for the benefit of the medical students.

Thus was founded in the American Colonies their first medical faculty, which, through various vicissitudes, continued an uninterrupted course to its present proud position as the Medical Department of the

University of Pennsylvania. Since its foundation in 1765, there have been but seven occupants of this chair of anatomy: Shippen, Wistar, Dorsey (five months), Physick, Horner, Leidy and Piersol, truly a long

for the establishment of our first medical school, there would seem to be plenty for both of the chief actors. Shippen undoubtedly paved the way by his successful courses of anatomical lectures; as early as 1762,



THE FOTHERGILL CRAYONS AT THE PENNSYLVANIA HOSPITAL ON WHICH SHIPPEN'S ANATOMICAL LECTURES WERE BASED

lived and big-minded group! The first degrees (Bachelors of Medicine) were given in 1767, and by statute, three years had to elapse before a thesis could be presented and a doctorate acquired. It is for this reason that the first doctor's degrees were given by the Medical School of King's College, N. Y., which only required a lapse of one year. In awarding the credit

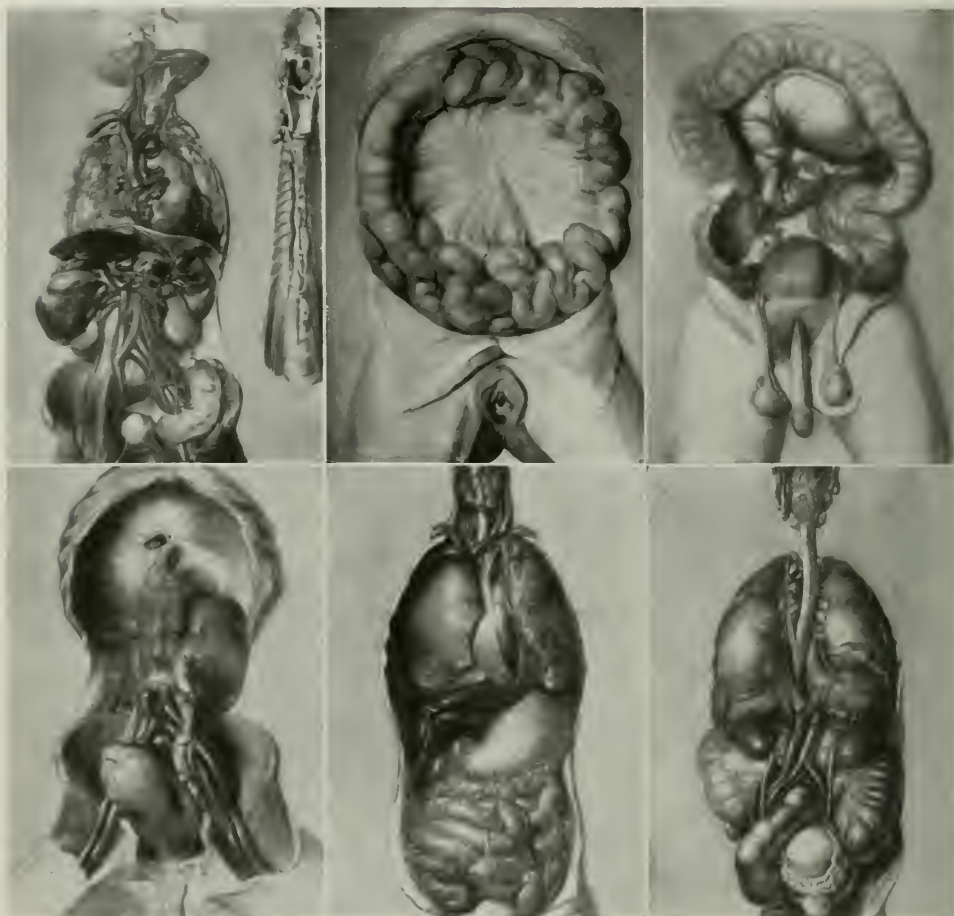
in his introductory lecture, he spoke of the need for a medical school in America; and in the above letter speaks of having attended to the matter for seven years past. Also his courses were considerably more important than those given by Morgan. Morgan, on the other hand, proposed the definite plan that was accepted by the Trustees and was the first professor to be elected. Morgan's claim as "the original founder" was never to my

knowledge disputed by the gentle, amiable Shippen. They worked together harmoniously on the new faculty, and though in the turmoil of Revolutionary, military medicine, trouble aplenty developed, why question this splendid achievement now?

One more item of the teaching of anatomy in Colonial Philadelphia may be included as a picturesque illustration of the times. In

1770, an English anatomist, Dr. Abraham Choyet, was forced by a slave insurrection in Jamaica to flee with his family and settled in Philadelphia. He brought with

of the human body will be demonstrated, with their mechanisms and actions, together with the doctrines of life, health and the several effects resulting from the actions of the parts;



THE FOTHERGILL CRAYONS AT THE PENNSYLVANIA HOSPITAL ON WHICH SHIPPEN'S ANATOMICAL LECTURES WERE BASED.

him a series of wax anatomical models, which, with a collection of dried, injected and painted specimens, formed the basis for a series of anatomical lectures in the winter of 1774-75:

At the Anatomical Museum in Vidal's alley, Second Street, on Wednesday, the Seventh of December at six in the evening Dr. Choyet will begin his course of Anatomical and Physiological Lectures, in which the several parts

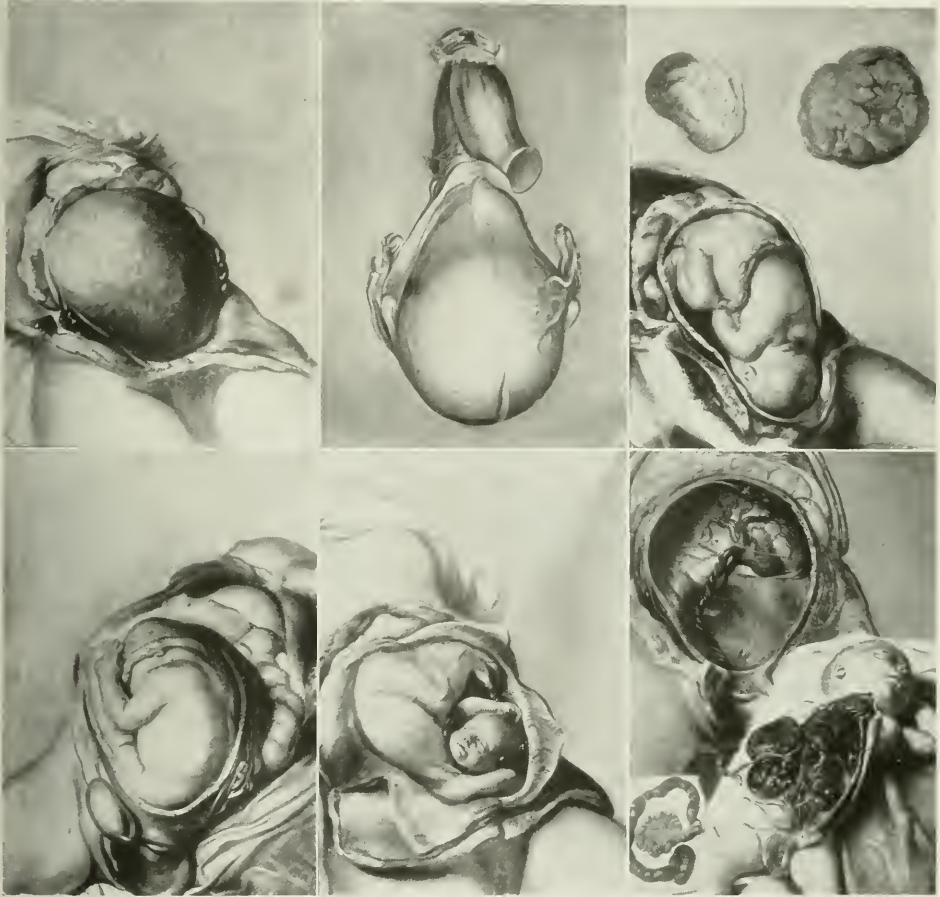
on his curious collection of Anatomical wax-works, and other natural preparations; to be continued the whole winter until the course is completed. As this course cannot be attended with the disagreeable sight or smell of recent disease and putrid carcasses, which often disgust even the students in Physick, as well as the curious, otherwise inclined to this useful and sublime part of natural philosophy, it is hoped this undertaking will meet with suitable encouragement.



Tickets to be had for the whole course at Dr. Chovet's house in Second Street, Philadelphia.

I cannot find whether these lectures were continued later, but at any rate, in 1793,

the study of anatomy in Philadelphia; but it must be recognized that, though in one of the latest colonies to be founded, Philadelphia was then the metropolis of the



THE FOTHERGILL CRAYONS AT THE PENNSYLVANIA HOSPITAL ON WHICH SHIPPEN'S ANATOMICAL LECTURES WERE BASED.

his heirs sold the collection to the Pennsylvania Hospital as an important addition to their museum. At that time they consisted of eight wax models, ninety-three dried and sixty wet preparations.<sup>27</sup> Chovet's personal peculiarities and anecdotes about his jovial disposition have been so well described by Packard<sup>28</sup> and others that repetition here is unnecessary.

It may be thought that undue attention has thus far been paid to the progress of

country,<sup>29</sup> and led the other centers in medicine as it did in various other pursuits. That this is recognized by other than Philadelphians is shown by the following quotation from one of the most charming of our medical essayists,<sup>30</sup> lost to us, alas, in his prime:

Many (Massachusetts Doctors) went to London and Edinburgh, but more flocked to the Philadelphia school. The foundation of the Harvard Medical School in 1782 by no means

put a stop to those Philadelphia journeys, for it took many years to bring the Harvard School up to the Philadelphia standard. In those days, Philadelphia had this lead over Boston in the advantages it offered medical students, that it provided abundant clinics at the old Pennsylvania Hospital. At Harvard there was no clinic worthy the name. A few patients were shown weekly at the ancient Boston Almshouse, but the school proper was in Cambridge, a two hours journey from Boston then, and the instruction given in Cambridge was altogether didactic.

New York medical progress followed close on the heels of Philadelphia. In 1763 Dr. Samuel Clossy (or Clossey), a graduate of Trinity College, Dublin, who stayed in this country until driven out by the Revolution, gave a course of lectures on anatomy at King's College (now Columbia University), comparable to those started the year before by Shippen in Philadelphia. In 1768 a medical department was started in the same institution, with Clossey as Professor of Anatomy, and among others, John Jones, Professor of Surgery, and the celebrated Samuel Bard (the son of the afore-mentioned John Bard) as Professor of the Theory and Practice of Physic. To Bard, who was considered by Mumford to be with Benjamin Rush the two foremost medical figures of the century, is usually given the chief credit for the foundation of this School.<sup>31</sup>

Organized anatomical instruction in Baltimore began somewhere between 1760 and 1770 with the work of Charles F. Wiesenthal, a Prussian "Medicinae Practicus," who arrived in Baltimore in 1755.<sup>32</sup> In the rear of his house on Gay Street, he erected buildings for his school and dissecting rooms, in which many eminent practitioners were taught until his death

1789. These buildings are still standing in 1922, and will soon have *vis-a-vis*, the Memorial Building of the Great War recently dedicated by Marshall Foch.

In spite of the advanced state of learning in the New England colonies, and the early

start that we have seen made in "Anatomies" and post-mortem examinations, institutional instruction in anatomy seems to have lagged. An Anatomical Society composed of undergraduates, was known to have existed at Harvard in 1771 and to have been in possession of a skeleton, "but their demonstrations were confined to the dissection of appropriate animals," as the examination of a human body was then an extraordinary occurrence even with our most inquisitive anatomists.<sup>33</sup> The first public lecture on Anatomy in Boston was given by John Jeffries (of English ballooning fame) shortly before the outbreak of the Revolution, and it was not until the closing years of the Revolution that in 1782 a medical school was organized in Cambridge.<sup>34</sup> In September, the Corporation of Harvard College adopted the report on the formation of a medical school and on November 22nd appointed John Warren, Professor of Anatomy and Surgery. This he accepted on December 24th, but was not inducted into office until the next October, with Waterhouse as Professor of the Theory and Practice of Physic, and Dexter, a few weeks later, as Professor of Chemistry and Materia Medica. Warren held this chair (which had been founded in 1770 by Ezekiel Hersey with a gift of 1,000 pounds) until his death in 1815.

John Warren,<sup>35</sup> a brother of the Joseph Warren who was killed at Bunker Hill, had served with distinction in various positions in the early days of the Revolutionary War, and on July 1, 1777, when only twenty-two years old, was made Senior Surgeon of the newly established General Hospital in Boston, a position which he occupied until the end of the war. Here, in the winter of 1780, he gave a course of anatomical lectures and dissections to a group of students, physicians and scientific gentlemen, which was so successful that the Boston Medical Society voted that he "be desired to demonstrate a course of anatomical lectures the ensuing winter." This he gave, as well as a third course in

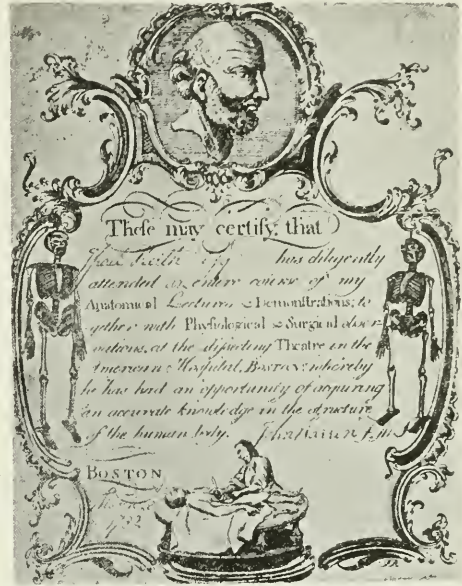
1782, to which the Harvard Seniors were admitted, so that, like his friend Shippen's earlier lectures in Philadelphia, these played an important part in promoting the formation of a Medical faculty at Harvard.

In 1779 Thomas Jefferson had secured a Professorship of Anatomy, Medicine and Chemistry at William and Mary College, which, with the foundation of the Dartmouth Medical School in 1797 by Dr. Nathan Smith, completes the list of eighteenth century medical schools in the United States.

No evaluation of these accomplishments would be correct without due recognition of the obstacles in the way of anatomical investigation in the eighteenth century and even later. For most of this period there was no legal protection for the dissector, and anatomical material was so scarce that it had, as in the home countries, usually to be obtained by "body-snatching." It has already been related how the bodies of executed criminals were occasionally turned over by the authorities for dissection, and Edward Warren tells how in the Boston of his father's time, the Governor, who had the disposal of the body, might assign it to the man's friends or to a surgeon, or permit the prisoner to make his own arrangements for the sale of his own body. This gave rise, in the case of Levi Ames, to a night expedition and a matching of wits that is amusingly described in Warren's life.<sup>36</sup> Before the existence of a Medical School or lecture room, "the back windows of the house were occupied with drying preparations of legs and arms, and other anatomical and morbid specimens, prepared by Dr. Warren, and forming the basis of the Warren Museum, afterwards in the Medical College."

Often more serious events resulted from the prevailing ignorance and horror of dissections. Thus the building in which Shippen's dissections were made was several times attacked, and the Doctor forced to conceal himself; and on one occasion, his waiting carriage was driven off by a shower of missiles and pierced by a musket ball,

while he made his escape through a private alley. "Several times he addressed the citizens through the public papers, assuring them that the reports of his disturbing private burying grounds were absolutely false and stating that the subjects he dis-



CERTIFICATE OF ATTENDANCE AT WARREN'S COURSE OF LECTURES, 1782, THE ORIGINAL OF WHICH WAS ENGRAVED BY PAUL REVERE.

sected were either of persons who had committed suicide, or such as had been publicly executed; except, he naively adds, 'now and then one from the Potter's Field.'<sup>37</sup>

In New York, the popular prejudice against dissection culminated in the celebrated Doctors' Mob of April, 1788. Doctor Richard Bayley, having waved the arm of a cadaver at a boy who was peeping through the window of the Society of the Hospital in the City of New York,<sup>38</sup> a mob collected which stormed the buildings, burned Bayley's valuable pathological collection, and attacked the jail whither the Doctors had fled. Seven rioters were killed and several more wounded before the disturbance was quelled by the militia. Probably

from this riot, however, came the first law to aid Anatomy, when New York, in 1789 made it lawful for the courts to add dissection to the death penalty in cases of murder, arson and burglary. In 1788 also, Wiesenthal's School in Baltimore was invaded by a mob, and the body of the murderer, Cassidy, which was being dissected, was taken from the gentlemen who were then studying anatomy and surgery.<sup>39</sup>

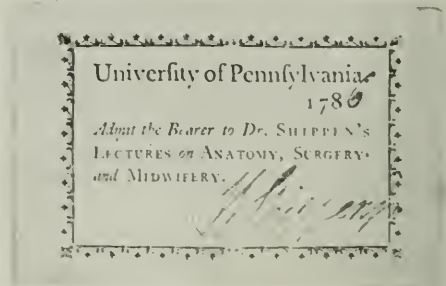
In 1778, the state of Virginia had stopped the dissection of executed criminals, permission for which had previously been a prerogative of the Royal Governors, and the Massachusetts Act of 1784 was apparently designed to discourage duelling rather than to protect anatomy. In it, the coroner was directed that he shall either bury the bodies of dead duellists "without a coffin, with a stake drove through the body . . . . .



PORTRAIT OF WILLIAM HUNTER OF NEWPORT, R. I., PAINTED BY COSMO ALEXANDER, NOW IN THE POSSESSION OF A. F. HUNTER OF NEWPORT.

or shall deliver the body to any surgeon or surgeons to be dissected and anatomized." In 1790 the first Congress of the United States passed a law similar to the New York

law of 1789; but it was not until 1831 that any further advance was made, when Massachusetts authorized the delivery to the Anatomists of the unclaimed bodies of



CERTIFICATE OF ATTENDANCE AT SHIPPEN'S LECTURES.

"deceased persons required to be buried at the public expense."<sup>40</sup> Even as late as this, however, coincident with the English "Resurrectionists," it is told that Dr. Beck had to drive a corpse from Albany to Boston, on account of the scarcity of anatomical material. In the State of Pennsylvania it was not until 1883 that a satisfactory law was obtained for the legal acquisition by an Anatomical Board of unclaimed and other bodies, for purposes of dissection and anatomical study. Since that time, however, there has never been any serious dearth of anatomical material, and with the gradual enlightenment of public opinion, the student has long been able to dissect to his heart's content without fear of mob violence. With an abundance of material and equipment, conditions for anatomical study in this country are therefore favorable. Although the steps of medical progress have inevitably, for the most part, left the firm footing of normal and pathological anatomy for more complicated and shifting fields, let us hope that the proper importance of these studies to the student beginning medicine will never be wholly lost sight of.

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  21. KELLY and BURRAGE, *loc. cit.*, NORRIS, G. W. Early History of Medicine in Philadelphia, p. 209.
  22. GARRISON, F. H. *History of Medicine*, p. 336.
  23. These beautiful anatomical charts were made in 1755 by J. Van Riemsdyck, the artist employed by William Hunter to illustrate his work on the gravid uterus, from preparations made by Jenty, a well-known London dissector. As the crayons were made seven years before their presentation to the Pennsylvania Hospital, it is probable that they were a chance find, rather than done specifically for this purpose. Of the eighteen crayons, seventeen, recently reframed, now stand in the library of the Pennsylvania Hospital. The first of the series signed Burgess, though by a different hand, obviously belonged to the original lot. The eighteenth of the present set, an oil painting of the Love Sickness, has probably been included with the lapse of time to replace one that was lost. A recent cleaning, which revealed a figure of Cupid with bow and arrow in the background, furnishes its title. The crayons fall into three distinct groups; as two of these contain six and the other five, it is presumable that it is one of the stages of dissection of the whole body that has been lost. The three gypsum models of pregnancy now stand in the museum of the Ayer Laboratory at the Hospital.
  24. MORTON, T. G. *History of the Pennsylvania Hospital, 1751-1895*; Packard, F. R., *loc. cit.*, and Scott, J. A., concerning the Fothergill pictures at the Pennsylvania Hospital, *U. of Penna. Med. Bull.*, 1904, xvi, 358. Another evidence of Fothergill's far-sighted generosity was his presentation to the hospital in the same year of An Experimental History of the Materia Medica, by William Lewis, F.R.S., 1761, "for the benefit of the young

- students in physic, who may attend under the direction of the physicians." This proved to be the first book of the first institutional medical library in the country, which library had grown by 1790 to 528 volumes, and by 1857 to 10,500, and was probably during that period the best in the country.
25. The subject of his thesis, *De Placentae cum utero nexo*, 1761, indicates already the bent of his activity.
  26. HENRY, F. P. *Standard History of Medicine in Philadelphia*, p. 44.
  27. MORTON, T. G. *The History of the Pennsylvania Hospital, 1751-1895*, p. 36.
  28. PACKARD, F. R., *loc. cit.*, and MORTON, T. G., *loc. cit.*
  29. In 1790, with a total population in the United States of 3,928,326, Philadelphia had 45,250; New York, 33,131; Boston, 18,038; Charleston, 16,359; and Baltimore, 13,503. (Compiled by Toner from first U. S. census.)
  30. MUMFORD, J. G. *Medicine 100 years ago*, in *Surgical Memoirs and other Essays*, p. 245.
  31. WALSH, *loc. cit.*
  32. CORDELL, E. F. Charles Frederick Wiesenthal, *Medicinae Practicus*, the Father of the Medical Profession of Baltimore. *J. Hop. Hosp. Bull.*, 1900, xi-xii, 170.
  33. BARTLETT, Josiah. An Historical Sketch of the Progress of Medical Science. *Proc. Mass. Hist. Soc.*, 28, 1, 105.
  34. HARRINGTON, T. F., and MUMFORD, J. G. *History of the Harvard Medical School*, New York, *Lewis Hist. Pub. Co.*, 1905.
  35. WARREN, EDWARD. *The Life of John Warren, M.D.*, Boston, 1874.
  36. *loc. cit.* p. 228.
  37. NORRIS, G. W. *Early History of Medicine in Philadelphia*.
  38. This hospital was incorporated in 1771, and was also liberally helped by the afore-mentioned Dr. John Fothergill. Bayley, who like Shippen and others mentioned in this narrative, had also studied with William Hunter in London, later became Professor of Anatomy at Columbia
  39. GRIFFITH'S. *Annals of Baltimore*, quoted by Hartwell and Cordell.
  40. HARTWELL, *loc. cit.*

**W**HEREAS ANATOMY is allowed on all Hands, to be the foundation both of PHYSIC and SURGERY, and consequently, without SOME Knowledge of it, no person can be duly qualified to practice either: This is therefore to inform the Publick, That a COURSE of OSTEOLOGY and MYOLOGY is intended to be begun, some Time in February next, in the City of New-Brunswick, (of which Notice will be given in this Paper, as soon as a proper Number have subscribed towards it) in which Course all the human BONES will be separately examined, and their Connections and Dependence on each other demonstrated; and all the MUSCLES of a Human BODY dissected; the Origin, Insertion, and Use of each, plainly shown, &c. This Course is proposed to be finished in the Space of a Month, By

THOMAS WOOD, Surgeon.  
Such Gentlemen who are willing to attend this COURSE, are desired to subscribe their Names as soon as possible, with Mr. Richard Hyslop, Surgeon, at New York, or with Thomas Wood, at New-Brunswick, paying at the same Time, THREE POUNDS, *Pro. and engaging to pay the laid Sum of Three Pounds more, when the Course is half finished.*

*N. B.* If proper Encouragement is given in this Course, he proposes soon after, to go thro' a Course of ANGIOLOGY and NEUROLOGY; and conclude, with performing all the OPERATIONS of SURGERY, on a dead Body; The Use of which will appear in every Person, who considers the Necessity of having (at least) SEEN them perform'd, before he performs to perform them himself on any living Fellow Creature.

THOMAS WOOD'S ANNOUNCEMENT IN THE *New York Weekly Postboy* OF JANUARY 17, 1752, OF THE FIRST COURSE OF ANATOMICAL LECTURES GIVEN IN BRITISH AMERICA.

## SOME EARLY OBSERVERS OF ALBUMINURIA

By WILLIAM DOCK, M. D.

PETER BENT BRIGHAM HOSPITAL

BOSTON, MASS.

IN 1694 a century before Wells (1811) and Blackall (1813) published their observations on dropsy and albuminuria, Frederick Dekkers described the effect of heat and acetic acid on certain types of urine, and in 1764, sixty-two years before Bright's classical work on nephritis, Domenico Cotugno described a typical case of acute nephritis, with anasarca, and large quantities of a heat-coagulable substance, "ovi albumini persimilem," in the urine. Cotugno's observation is remarkable in that he was testing for albumin, whose probable presence in cases of dropsy he had deduced from experiments on the body fluids from dropsical cadavers.

Dekkers (1648-1720) was a pupil of Sylvius and for thirty years Professor of Medicine in the University of Leyden. His claim to the discovery of albuminuria was first brought forward by Wilhelm Leube ("Ueber die Bedeutung der Chemie in der Medizin," Berlin, 1884). He contributed to Paul Barbette's "Praxis Barbetiana" and wrote a medical textbook, "Exercitationes Practicae Circa Medendi Methodum" which dealt with disease under eight headings as determined by the type of therapy. This was published in Leyden in 1694, and went through several editions in Latin, French and Dutch. The illustrations reproduced here are from the Dutch edition of 1717, printed by Johannes de Vivie in Leyden, a copy of which, from the collection of the late Dr. F. J. Lutz, was obtained from the library of the Washington University School of Medicine, St. Louis. In the fifth chapter of this book he discusses cathartics, and especially their effect upon dropsy. The discussion is chiefly in case-histories, among them that of "a woman forty years old, mother of five children,

melancholy, hard-living but healthy," who developed dropsy, and after all else had failed was treated with permanent drains, inserted on a needle, as shown by his illustration. He mentions the fact that the urine of these patients frequently contains much sediment, especially after boiling and adds:

I can scarcely pass by the fact that the waters of consumptives and emaciated people are clear and translucent, when unboiled. But I have also found that these when placed on the fire, soon become milky, really smelled like milk, and had the taste of sweet milk; when a drop or two of acetic acid were added to this, and it was then placed in the cool air, shortly a white rennet, namely, the caseous part, sank to the bottom, and the oily or buttery part floated up, and there was a sweet whey, quite homogeneous, free of the different parts now; wherefrom we might conclude that this urine is a kind of clear and very thin or watery chyle, or nourishing fluid.

It is futile to speculate on the character of the "oily particles," though it seems likely that Dekkers' imagination was too much taken by the similarity between the appearance of the boiled urine and milk. It is evident that the acetic acid was added to confirm the notion that this fluid was milk, and the reaction so accorded with his ideas that he made no further study of it. In fact, it is not apparent from his description that many specimens were examined, nor does he link up this albuminuria with dropsy, but rather regarded it as a frequent occurrence in wasting diseases.

Cotugno, or Cotunnius, was born in 1736, became Professor of Anatomy at Naples in 1766 and died in 1822. He gave a very good description of the intestinal lesions of typhoid fever, the pustules of smallpox, and described the nasopalatine

nerve, the cerebrospinal fluid and the internal ear. Since the World War Italian otologists have hailed him as the original propounder of the theory of sound-perception which is known by Helmholtz's name. His celebrated contemporary, von Haller,



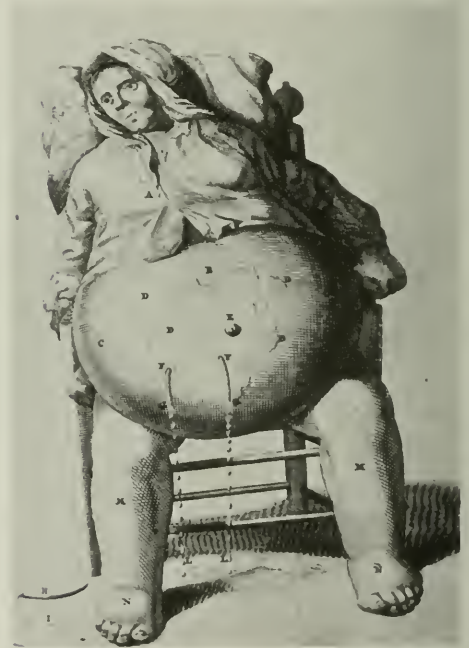
FREDERIK DEKKERS  
(1648-1720)

describes him as "a brilliant man, keen and shrewd in the most detailed investigations."

His experiments on coagulability of various body fluids were part of a study of sciatica, which was published with the title "De Ischiade Nervosa Commentarius," and dedicated to his teacher, Gerhard van Swieten. This was first published in Naples in 1765, and went through at least five subsequent editions, in Vienna, Venice and Naples. The copy on which this account is based was printed in Venice in 1782, and was obtained from the collection of Dr. George Dock, to whom I am indebted for valuable suggestions in preparing this study.

In this work he ascribes sciatica to a dropsy of the dural sheaths of the roots of the sciatic nerves and discusses at length

the nature of the cerebrospinal fluid. Prior to his time it had been thought that the fluid in the subarchnoid was a post-mortem artefact, the space being filled during life with "vapor" or even being a mere vacuum. To prove that this was artefact his opponents had stated that the spinal fluid was not coagulable by heat, while that obtained from the ventricles of the brain was coagulable. Cotugno found that in most of his experiments, as in those of Bellinius, Brunnerus, Boerhaave and de Haen, the fluid of the ventricles, like that of the spinal cord, evaporated entirely, without forming any coagulum. He attributed his critics' results to their having obtained the ventricular fluids from hydrocephalics and gave the



THE INSERTION OF A WICK FOR THE DRAINAGE OF ASCITES.  
FROM DEKKERS' "EXERCITATIONES MEDICAE PRACTICAE  
CIRCA MEDENDI METHODUM, OBSERVATIONIBUS ILLUSTRATAE,  
1673.

following discussion of inflammatory exudates:

Thus I shall show that all the humors of the body which, when secreted naturally from the blood, are not coagulable, frequently become



coagulable from serious disturbances. I shall begin with urine, which everyone knows is not coagulable but which was seen to coagulate in those experiments of ours which I am about to describe.

A soldier, twenty-eight years old, was stationed for many years at mild and very damp



DOMENICO COTUGNO  
(1736-1822)

Baiae. About the end of August he was seized with an intermittent quotidian fever, which strangely broke out in dropsy in five days. At the beginning of September he was brought to my Sanatorium and intrusted to my care. He was suffering at this time with immense watery swellings of his whole body, and overwhelmed by the hitherto daily attacks of fever; the dropsy seemed to increase daily, shortly before the paroxysms. The excreta were dry, there was but little urine and he was wholly cast down in mind:

Then followed the effects of treatment with ipecac, Peruvian bark and rhubarb, squill pills and sassafras decoctions:

But the urine flowed much less and finally the dropsical swelling seemed to grow . . . In this case it seemed best to use cream of tartar, whose effect in provoking urine, without accelerating the pulse, I have shown in other experiments. By this remedy the output of urine was increased so that the sick man passed ten or

twelve pints of concentrated urine in a night. However, since the sick man himself admitted that his drinking had been very slight, it was certain that the enormous quantities of urine were being drawn especially from waters collected in the dropsy. Although this was shown by the decrease in the distention of the body, it seemed best to settle this question by a definite experiment, heating the urine. For I had often conclusively shown that the fluid collected beneath the skin of such dropsical cadavers contained material capable of coagulation and I hoped that if the sick man passed such fluid by way of the urine, coagulation would be seen if the material which flowed out were heated; which, as I had anticipated, was

**DOMINICI COTUNNII**  
**PHIL. ET MED. DOCT.**  
**D E**  
**ISCHIADE**  
**NERVOSA**  
**COMMENTARIUS.**



**V E N E T I I S,**  
**M D C C L X X X I I.**

**TYPIS BARTHOLONÆÆ OCCINI**  
**SUPERIORUM PERMISSU.**

TITLE PAGE OF "DE ISCHIADE NERVOSA COMMENTARIUS" BY DOMENICO COTUGNO.

proved by experiment. For with two pints of this urine exposed to the fire, when scarcely half evaporated, the remainder made a white mass, already loosely coagulated like egg albumen. . . Thus it was shown for the first time that urine, which no one had shown to be coagulable if from healthy people, can at some time contain a coagulable substance.

He then discusses the fluids present in the serous cavities and states that when normally clear they are different from lymph in that they are not coagulable, as he had shown often in cadavers and five times in the pericardial fluid of living dogs, and as Malpighi had shown in the pericardial fluid of a live cow. Those fluids which did coagulate were entirely different in character, "of a new color, concentrated and yellow and far from a pure watery colorlessness." These he regarded as inflammatory, as in the cerebrospinal fluid of hydrocephalus, the pleural and pericardial effusions of dropsy. "The hydrocele of the sheath of the testis, the fluids of which are coagulable, is wont to be preceded by an inflammation of the testis." He gave a rather simple theory of these processes, based on the supposition that blood consisted of three parts, "one red, which is composed of innumerable minute discs; another yellow which is hardened at the fire; and finally, the pure aqueous." The red part was confined to the arteries and veins, the yellow passed into the lymphatics, while the aqueous also went through fine pores into the serous cavities, pulmonary and oral surfaces. That which came in contact with the air evaporated and could be seen condensing in cold weather, the part that entered the serous sacs remained as a pure, clear fluid, but when

inflammation blocked the lymphatics the rapid pulse of fever forced the lymph into the intercellular spaces and serous cavities, where it might coagulate. "Nor have those pathologic ligaments, which we have often seen, after such inflammations binding either the pericardium to the heart, or the pleurae to the lungs, any other origin."

So perfect was Cotugno's theory that he missed the entire significance of albuminuria, as we understand it, and having discomfited the critics of his notions on cerebrospinal fluid, made no further observations on this phenomenon. Those who read his work, notably Erasmus Darwin, who quoted him in his "*Zoonomia*," approved his theory. Those accidentally discovering albumen in the urine of nephritis, were more impressed than Cotugno, who had predicted its presence, investigated further and established the importance of this condition. We may conclude by saying of Cotugno, as Blackall does of Dr. Darwin:

This great author would, without doubt, have modified his opinion, had he made any experiments, and would have ascertained that the coagulation of which he speaks, takes place long before the boiling heat; that it is not a temporary relief, but a continued symptom of dropsies through their whole course; and that the curative effort of nature is urine not loaded with serum, but almost devoid of it.

## MEDICAL MAGIC\*

By ISADOR H. CORIAT, M. D.

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ANY inquiry into the evolution of medicine, must deliberate upon the important question—how far is the modern physician to be considered the social counterpart of the primitive “medicine-man,” or to state it more broadly, from the psychological standpoint, what survivals of archaic thinking, either conscious or unconscious, can be detected in the practise of modern medicine? By modern medicine is understood the development of medicine as a science or art within the last fifty years, after it had freed itself, in part at least, from the enshrined superstitions of past centuries.

In order that the approach to the question may be clarified, it will be necessary to examine briefly the general development of the thinking processes in the human race and of scientific or medical thinking in particular. In the primitive “medicine-man” the thinking was undirected, it turned away from reality, set free subjective wishes, created nothing, was wholly unproductive. Because of the fantasy-like character of this thinking, magic was evolved, and magic is nothing else but the primitive medicine-man’s belief in the omnipotence of his thoughts. In the modern physician, on the contrary, knowledge is based on the contributions of the various biological, physical and psychological sciences to the practice of medicine. In medicine as an art, the thinking is of the directed type, it faces reality, acts upon it and consequently, is constantly creating new innovations and new adaptations. In other words, directed thinking is productive. However, the chief theme of this contribution will attempt to demonstrate, that even in the directed thinking of the modern

\* Read before the Boston Medical History Club, January 24, 1922.

physician, there exist unconscious survivals of the undirected thoughts of the primitive medicine-man, a sort of belief in the magical omnipotence of his therapeutic wishes. Such an inquiry may be of great value for the understanding of certain aspects of modern medicine, for it is “out of such bed-rock stuff, that advanced medical science is in no small part developed.”<sup>1</sup>

It is not my purpose to minimize the high cultural value of this magical belief in the power of thought, for this omnipotence of thought is a part of man’s unconscious heritage from primitive society, it is almost instinctive, if instinct is regarded as the accumulated experience of the unconscious. As this omnipotence of thought existed in the childhood of the race, so it also exists in the childhood of civilized man and its repressed tendencies often crop out as symptoms of severe nervous and mental disorders. For instance it plays a striking part in the compulsion neuroses, while in the paranoiac states it often manifests itself in the form of imaginary systems, symbolic transformations or impossible inventions. On the contrary, all scientific research, all technical processes, directed towards the domination of the powers of nature or the minimizing of destructive processes in the human body through disease, spring from this omnipotence of thought. In these cases we are dealing with a transformation of imaginary wishes into real activities.

The subject of medical magic can be approached from several standpoints—such as the belief in the omnipotence of knowledge and of the actions of drugs without known physiological effect, that of undirected or autistic thinking in the treatment and prevention of disease and finally that

<sup>1</sup> Maret, R. R. *Psychology and Folk Lore*, 1920.

of the various types of medical thinking in therapeutics and scientific investigation. The subject is a very broad one and of great importance for the understanding of medical history, for only by understanding medical magic can one link up the concepts of primitive medicine with the astonishing developments of modern scientific medicine.

In view of its great importance, the work of Bleuler<sup>2</sup> must be considered in relation to the subject of medical magic. In the history of medicine, the subject of autistic thinking has played a prominent part, e. i.—the behavior of the physician in both diagnosis and therapeutics is often controlled by instincts, affective factors and wishes. Bleuler protests against this prevailing type of thinking and suggests that medical men must accustom themselves to a mode of thought which corresponds more closely to reality, it must be more realistic rather than a mixture of the realistic and the autistic, or in some cases, of the autistic alone. It is only when disciplined thought becomes a universal reality that the physician's function will finally develop into an intelligent aid to the patient's life and the regulation of the illness which has, to a greater or lesser extent, incapacitated him in the midst of his environment. According to Levy-Bruhl<sup>3</sup> the early conception of disease was a mystical one. Disease was thought to be produced by an invisible or intangible agent.

Most of the material utilized in this subject of medical magic has been gathered from various portions of Frazer's "Golden Bough" principally in the first two volumes on "Magic Art and the Evolution of Kings" and in the third volume on "Taboo and the Perils of the Soul." The title of the twelve volumes "The Golden Bough," around which Frazer has grouped and evolved the important elements of man's mental development,

is taken from the golden bough, or mistletoe which grew on the sacred oak in the ancient Arician grove of Diana in the valley of Nemi. It denoted the the divine life of the tree or symbolically the sacred fire or life principle, the plucking of which led to, and decided the death of the divine priest who presided over the sacred grove.

As this paper deals with the subject of medical magic almost exclusively as it is presented in Frazer's monumental work, it will be necessary to mention only briefly the various symbolic and mythological ramifications which make the reading of the "Golden Bough" such a delightful, intellectual treat. Such questions for instance as—why had Diana's priest at Nemi, the King of the Wood, to slay his predecessor, but before doing so, why had he to pluck the branch of a certain tree which the ancients identified with Virgil's Golden Bough? Even if these questions are not considered in detail, their relation to the subject of magic in general and of medical magic in particular, are necessary for a clear understanding of the material.

The whole of the "Golden Bough," which is really a study of magic and religion from the evolutionary standpoint, is concerned with man's struggles in his attempts at adaptation to reality. These twelve volumes are monumental in their material and while at times there may be some disagreement with the author's interpretations, yet the material collected and collated from the most varied sources, is of the highest value. The entire work contains a profound and detailed investigation of the customs, beliefs and thoughts of primitive people in their efforts to prolong life and to avoid death and disease.

Primitive man as a result of his limited experience knew principally contact and similarity and by these principles he sought to control the mysterious powers of nature, relating to his profoundest needs, such as sex, food, vegetation, death and disease. Certain men of the tribe, more clever and perhaps more unscrupulous than the rest,

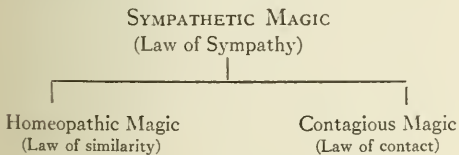
<sup>2</sup> Bleuler, E. *Das Autistisch—Undisziplinierte Denken in der Medizin und Seine Überwindung*, 1919.

<sup>3</sup> Levy-Bruhl, L. *Les Fonctions Mentales dans les Sociétés Inferieures*, Chap. VII—*La Maladie*. Paris, 1918.

sought to exercise power over their fellow-men and thus acquire social and political supremacy. It was these men who became the leaders of the tribe. At first they were the magicians, later they evolved into the medicine-men claiming control over the mysterious life-principle of man, the cure of disease and the avoidance of death, or at least the postponement of death, to an indefinite period.

In the animistic stage of human culture, man ascribed omnipotence to himself, this is magic; in the religious stage, it was ceded to the gods, this is prayer; in the scientific stage, man ceased to believe in his own omnipotence or that of anthropomorphic external agencies, but ascribed it to the blind forces of the universe, this is energy.

Magic is an art and not a science. The idea of a source of magic is lacking in the undeveloped and primitive mind. Magic is essentially based on charms, either according to the law of similarity which is called homeopathic magic, or the law of contact or contagion, which is termed contagious magic. The primitive magician or medicine-man had a knowledge of magic only from what he felt were its practical results, and unlike what occurs in modern medical science, he never analyzed the mental processes on which the practice was based, such as for instance in Koch's laws or in the theories of anti-toxins or chemotherapy. Consequently, he remained in complete ignorance of the pathological processes of the disease, and the physiological or psychological readjustments, by which disease is ameliorated or cured. Frazer tabulates the branches of magic as follows:



In modern medicine, the administration of certain ductless glands, which are devoid of physiological action when removed from

the body and submitted to dessication and chemical processes, resembles the homeopathic medical magic of primitive man. I refer to the use of such animal substances in medicine as the spinal cord or brain for organic diseases at the nervous system or epilepsy and finally the use of prostate gland substance for enlarged prostate.

Often too, the individual ownership of magic formulae for the cure of disease, was held by an elderly woman as a trade secret, thus strongly resembling the patent medicines of a more complex society. In addition, it is cleverly stated, that to divulge the formula is to destroy its efficacy.

It has often been asserted that magical therapeutic formulae were utilized for the expulsion of those demons which were supposed to produce disease. This charm magic, or the treatment of disease through written or spoken medical charms, is only one subject of the problem, although these charms on ultimate analysis, will be found to present certain features of homeopathic or contagious magic. This because primitive man knew principally contact and similarity and by these principles alone sought to control the mysterious powers of nature and exercise control over the physical or mental well-being of his fellow-men.

Magic is a precursor of religion. The idea of a remote deity in very primitive societies had little effect on practical life and therefore man's gods, on which his life, happiness and health depended, devolved on his chiefs, magicians or medicine-men, which thus became the human interpreters of divine functions. Those leaders therefore, who claimed to control the mysterious life-principles of man, became not only the leaders of the tribe, but likewise the divine healers or medicine-men.

Without entering into further details of the evolution of magic and its essential principles, we will discuss at once the subject of this paper: medical magic, both homeopathic and contagious, in its attempts to cure disease and also the taboos of certain individuals who are afflicted

with certain diseases or with certain profound changes concerning the menstrual cycle and the birth of children.

#### TREATMENT OF JAUNDICE<sup>4</sup>

The ancient Hindoos performed an elaborate ceremony, based on homeopathic magic, for the cure of jaundice. Its main drift was to banish the yellow color to yellow creatures and yellow things, such as the sun, to which it properly belongs, and to procure for the patient a healthy red color from a living vigorous source, namely a red bull. With this intention, a priest recited the following spell: "Up to the sun shall go to thy heart-ache and thy jaundice" (p. 79).

In Germany yellow turnips, gold coins, gold rings, saffron, and other yellow things are still esteemed remedies for the jaundice, just as a stick of red sealing wax carried on the person cures the red eruption popularly known as St. Anthony's fire, or the blood stone, with its blood-red spots allays bleeding. Another popular remedy in Germany for the red St. Anthony's fire and also for bleeding is supplied by the common crossbills (p. 81).

#### TREATMENT OF ALOPECIA

An ancient Indian cure for a scanty crop of hair was to pour a solution of certain plants over the head of the patient: this had to be done by a doctor who was dressed in black and who had eaten black food, and the ceremony must be performed in the early morning, while the stars were fading in the sky, and before the black crows had risen cawing from their nests. The exact virtue of these plants has escaped our knowledge, but we can hardly doubt that they were dark and hairy: while the black clothes of the doctor, his black food, and the swarthy hue of the crows unquestionably combined to produce a crop of black hair on the patient's head. A more disagreeable means of obtaining the same end is adopted by some of the tribes of Central Australia. To promote the growth of a boy's hair, a man with flowing locks bites the youth's scalp as hard as he can, being urged thereto by his friends, who sit around watching him at his task, while the sufferer howls aloud

<sup>4</sup>The references to this and other subsequent quotations, until otherwise indicated, are from Vols. I & II of the "Golden Bough," entitled "The Magic Art and the Evolution of Kings."

with pain. Clearly on the principle of capillary attraction, if I may say so, he thus imparts of his own mature abundance to the scarcity of his youthful friend (p. 83).

#### THE TREATMENT OF VOMITING, TUMORS AND PIMPLES

One of the great merits of homeopathic magic is that it enables the cure to be performed on the person of the doctor instead of on that of the victim, who is thus relieved of all trouble and inconvenience, while he sees his medical man writhe in anguish before him. For example, the peasant of Perche, in France, labor under the impression that a prolonged fit of vomiting is brought about by the patient's stomach becoming unhooked, as they call it, and so falling down. Accordingly, a practitioner is called in to restore the organ to its proper place. After hearing the symptoms he at once throws himself into the most horrible contortions, for the purpose of unhooking his own stomach. Having succeeded in the effort, he next hooks it up again in another series of contortions and grimaces, while the patient experiences a corresponding relief. Fee, five francs. In like manner a Dyak medicine-man, who has been fetched in a case of illness will lie down and pretend to be dead. He is accordingly treated like a corpse, is bound up in mats, taken out of the house, and deposited on the ground. After about an hour the other medicine-men loose the pretended dead man and bring him to life: and as he recovers the sick person is supposed to recover too. A cure for a tumor, based on the principle of homeopathic magic is prescribed by Marcellus of Bordeaux, court physician to Theodosius, the First, in his curious work on medicine. It is as follows: Take a root of vervain, cut it across, and hang one end of it around the patient's neck, and the other in the smoke of the fire. As the vervain dries up in the smoke, so the tumor will dry up and disappear. If the patient should afterward prove ungrateful to the good physician, the man of skill can avenge himself very easily by throwing the vervain into water, for as the root absorbs the moisture once more, the tumor will return. The same sapient writer recommends you, if you are troubled with pimples, to watch for a falling star, and then instantly while the star is still shooting from the sky to wipe the pimples with a cloth or anything

that comes to hand. Just as the star falls from the sky so the pimples will fall from your body: only you must be careful not to wipe them with your bare hand, or the pimples will be transferred to it (p. 84).

#### THE USE AND EFFECT OF THE PLACENTA AND UMBILICAL CORD

Other parts which are commonly believed to remain in a sympathetic union with the body, after the physical connection has been severed, are the navel-string and the after-birth, including the placenta. So intimate, indeed, is the union conceived to be that the fortunes of the individual for good or evil throughout life are often supposed to be bound up with one or the other of these portions of his person, so that if his navel-string or after-birth is preserved and properly treated, he will be prosperous; whereas if it be injured or lost, he will suffer accordingly. Thus among the Maoris, when the navel-string dropped off, the child was carried to a priest to be solemnly named by him. But before the ceremony of naming began, the navel-string was buried in a sacred place and a young sapling planted over it. Ever afterward that tree as it grew, was a *tobu orange* or sign of life for the child (p. 182).

The Incas of Peru preserved the navel-string with the greatest care, and gave it to the child to suck whenever it fell ill. In ancient Mexico they used to give the boy's navel-string to soldiers, to be buried by them on a field of battle in order that the boy might thus acquire a passion for war. But the navel-string of a girl was buried beside the domestic hearth, because this was believed to inspire her with a love of home and a taste for cooking and baking. Algonquin women hung the string around the child's neck, if he lost it they thought the child would be stupid and spiritless. Among the Thompson Indians of British Columbia the navel-string was sewed up by the mother in a piece of buckskin embroidered with hair, quills or beads. It was then tied to the broad buckskin band which extended round the head of the cradle on the outside. Many thongs hung from it, each carrying fawn's hoofs and beads that jingled when the cradle was moved. If the navel-string were lost, they looked on it as a calamity, for they believed that in after years the child would become foolish or would be lost in the chase or on a journey. Among the Kwak-

iat Indians of British Columbia the after-birth of girls is buried at high-water mark, in the belief that this will render them expert at digging for clams. The after-birth of boys is sometimes exposed at places where ravens will eat it, because the boys will thus acquire the raven's prophetic vision. The same Indians are persuaded that the navel-string may be the means of imparting a variety of accomplishments to its original owner. Thus, if it is fastened to a dancing mask, which is then worn by a skilful dancer, the child will dance well. If it is attached to a knife, which is thereafter used by a cunning carver, the child will carve well. Again if the parents wish their son to sing beautifully, they tie his navel-string to the baton of the singing master. Then the boy calls on the singing master every morning while the artist is eating his breakfast. The votary of the Muses thereupon takes his baton and moves it twice down the right side and twice down the left side of the boy's body, after which he gives the lad some of his food to eat. That is an infallible way of making the boy a good singer. Among the Cherokees, the navel-string of an infant girl is buried under the corn-mortar, in order that the girl may grow up a good baker; but the navel-string of the boy is hung on a tree in the woods, in order that the boy may be a hunter. Among the Kiawas the navel-string of a girl is sewn up in a small beaded pouch and worn by her at her belt as she grows to womanhood. If the girl's mother ever sells the belt and pouch she is careful to extract the navel-string from the pouch before the bargain is struck. Should the child die, the pouch containing her navel-string would be fastened to a stick and set up over her grave (pp. 196-198).

Thus, in many parts of the world the navel-string, or as more commonly called the after-birth, is regarded as a living being, the brother or sister of the infant, or as the material object in which the guardian spirit of the child or part of its soul resides. This latter belief we have found among the aborigines of Queensland, the Battas of Sumatra, and the Norsemen of Iceland. In accordance with such beliefs it has been customary to preserve these parts of the body, at least for a time, with the utmost care, lest the character, the fate, or even the life of the person to whom they belong should be endangered by their injury or loss. Further, the sympathetic connection supposed to exist be-

tween a person and his after-birth or navel-string comes out very closely in the widespread custom of treating the after-birth or navel-string in ways which are supposed to influence for life the character and career of the person, making him if it is a man, a swift runner, a nimble climber, a strong swimmer, a skilful hunter, or a brave soldier, and making her, if it is a woman, an expert fisher, a cunning sempstress, a good cook or a baker, and so forth. Thus the beliefs and usages concerned with the after-birth or placenta, and to a less extent with the navel-string present a remarkable parallel to the widespread doctrine of the transferable or external soul and the customs founded on it. Hence it is hardly rash to conjecture that the resemblance is no mere chance coincidence, but that in the after-birth or placenta we have a physical basis (not necessarily the only one) for the theory and practice of the external soul (p. 200).

#### TREATMENT OF WOUNDS

A curious application of the doctrine of contagious magic is the relation commonly believed to exist between a wounded man and the agent of the wound, so that whatever is subsequently done by or to the agent must correspondingly affect the patient either for good or evil. Thus Pliny tells us that if you have wounded a man and are sorry for him, you have only to spit on the hand that gave the wound, and the pain of the sufferer will be instantly alleviated. In Melanesia, if a man's friends get possession of the arrow which wounded him, they keep it in a damp place or in cool leaves, for this will clearly inflame and irritate the wound. Further, they keep the bow near the fire to make the wound which it has inflicted hot: and for the same reason they put the arrow head, if it has been recovered, into the fire. Moreover they are careful to keep the bow-string taut and to twang it occasionally, for this will cause the wounded man to suffer from tension of the nerves and spasms of tetanus (p. 201).

#### TREATMENT OF DROPSY

Another beneficent use of homoeopathic magic is to heal and to prevent sickness. In ancient Greece, when a man died of dropsy, his children were made to sit with their feet in hot water until the body was burned. This was supposed

to prevent the disease from attacking them. Similarly, on the principle of water to water, among the natives of the hills near Rajamahall in India, the body of a person who has died of dropsy is thrown into a river: they think that if the corpse were buried, the disorder would return and carry off other people (p. 78).

#### EXPULSION OF THE DEMONS OF DISEASE<sup>5</sup>

When Crevaux was travelling in South America he entered a village of the Apalai Indians. A few moments after his arrival some of the Indians brought him a number of large, black ants, of a species whose bite is painful, fastened on palm leaves. Then all the people of the village without distinction of age or sex, presented themselves to him, and he had to sting them all with the ants on their faces, thighs, and other parts of their bodies. Sometimes when he applied the ants too tenderly they called out, "More! More!" and were not satisfied until their skin was thickly studded with tiny swellings like what might have been produced by whipping them with nettles. The object of this ceremony is made plain by the custom observed in Amboyna and Uliase of sprinkling sick people with pungent spices, such as ginger and cloves, chewed fine in order by the prickling sensation to drive away the demon of disease which may be clinging to their persons. In Java a popular cure for gout or rheumatism is to rub Spanish pepper into the nails of the fingers and toes of the sufferer: the pungency of the pepper is supposed to be too much for the gout and rheumatism, who accordingly depart in haste. So, on the Slave Coast of Africa, the mother of a sick child sometimes believes that an evil spirit has taken possession of the child's body, and in order to drive him out, she makes small cuts in the body of the little sufferer and inserts green peppers or spice in the wounds, believing that she will thereby hurt the evil spirit and force him to be gone. The poor child naturally screams with pain, but the mother hardens her heart in the belief that the demon is suffering equally. In Hawaii, a patient is sometimes pricked with bamboo needles for the sake of hurting and expelling a refractory demon who is lurking in the sufferer's body and making him ill. Dyak sorceresses in south eastern Borneo will some-

<sup>5</sup> All subsequent references are in Vol. III—"Taboo and the Peril of the Soul."



times slash the body of a sick man with sharp knives in order, it is said, to allow the demon of disease to escape through the cuts, but perhaps the notion rather is to make the present quarters of the spirit too hot for him. With a similar intention some of the natives of Borneo and Celebes sprinkle rice upon the head or body of a person supposed to be infested by dangerous spirits: a fowl is then brought which, by picking up the rice from the person's head or body, removes along with it, the spirit or ghost which is clinging like a burr to his skin. This is done, for example, to persons who have attended a funeral, and who may therefore be supposed to be infested by the ghost of the deceased. Similarly Basutos, who have carried a corpse to the grave, have their hands scratched with a knife from the tip of the thumb to the tip of the forefinger, and magic stuff is rubbed into the wound, for the purpose, no doubt, of removing the ghost which may be adhering to the skin. Among the Barotse of south-eastern Africa, a few days after a funeral a sorcerer makes an incision in the forehead of each surviving member of the family and fills it with medicine, "in order to ward off contagion and the effect of the sorcery which caused the death." When elephant hunters in East Africa have killed an elephant they get upon its carcass, make little cuts in their toes, and rub gunpowder into the cuts. This is done with the double intention of counteracting any evil influence that may emanate from the dead elephant, and of acquiring thereby fleetness of foot possessed by the animal in its life. The people of Nias carefully scrub and scour their weapons and clothes which they buy, in order to efface all connection between the things and the persons from whom they bought them (pp. 105-107).

#### TABOOS OF MENSTRUATION

In general we may say that the prohibition to use the vessels, garments, and so on of certain persons, and the effects supposed to follow an infraction of the rule, are exactly the same whether the persons to whom the things belong are sacred or what we might call unclean or polluted. As the garments which have been touched by a sacred chief, kill all those who handle them, so do the things which have been touched by a menstous woman. An Australian blackfellow, who discovered that his wife had

lain on his blanket at her menstrual period, killed her and died of terror himself within a fortnight. Hence Australian women at these times are forbidden under pain of death to touch anything that men use, or even to walk on a path that any man frequents. They are also secluded at childbirth, and all vessels used by them during their seclusion are burned. In Uganda the pots which a woman touches while the impurity of childbirth or menstruation is on her should be destroyed: spears and shields defiled by her touch are not destroyed but only purified. No Esquimaux of Alaska will willingly drink out of the same cup or eat out of the same dish that has been used by a woman at her confinement until it has been purified by certain incantations. Amongst some of the Indians of North America, women, at menstruation are forbidden to touch man's utensils, which would be so defiled by their touch that their subsequent use would be attended by certain mischief or misfortune. For instance, in some of the Tinneh or Dene tribes, girls verging on maturity take care that the dishes out of which they eat are used by no one else. When their first periodical sickness comes on, they are fed by their mothers or nearest kinswoman, and will on no account touch their food with their own hands. At the same time they abstain from touching their heads with their hands and keep a small stick to scratch their heads with when they itch. They remain outside the house in a hut built for the purpose, and wear a skull-cap made of skin to fit very tight, which they never lay aside till the first monthly infirmity is over.

A fringe of shells, bones, and so on hangs down from their foreheads so as to cover their eyes, lest any malicious sorcerer should harm them during this critical period. Among all the Dene and most of other American tribes, hardly any other being was the object of so much dread as a menstruating woman. As soon as signs of that condition made themselves apparent in a young girl she was carefully segregated from all but female company, and had to live by herself in a small hut away from the gaze of the villagers or of the male members of the roving band. While in that awful state, she had to abstain from touching anything belonging to man, or the spoils of any venison or other animal, lest she would thereby pollute the same, and condemn the hunters to failure,

owing to the anger of the game thus slighted. Dried fish formed her diet, and cold water absorbed through a drinking tube, was her only beverage. Moreover, as the very sight of her was dangerous to society a special skin bonnet, with fringes falling over her face down to her breast, hid her from the public gaze, even some time after she had recovered her normal state. Among the Bribri Indians of Costa Rica a menstrous woman is regarded as unclean (*bukuru*). The only plates she may use for her food are banana leaves, which when she has done with them she throws away in some sequestered spot for were a cow to find them and eat them, the animal would waste away and perish. And she drinks out of a special vessel for a like reason: because if anyone drank out of the same cup after her, he would surely die. In the Islands of Mabuia and Saibai, in Torres Straits, girls at their first menstruation are strictly secluded from the sight of man. In Mabuia the seclusion lasts three months, in Saibai about a fortnight. During the time of her separation the girl is forbidden to feed herself or to handle food, which is put into her mouth by women and girls told off to wait on her (pp. 145-147).

#### TABOOS OF CHILDBIRTH

These customs show that in the opinion of some primitive peoples a woman, at and after childbirth, is pervaded by a certain dangerous influence which can infect anything and anybody she touches: so that in the interests of the community it becomes necessary to seclude her from society for awhile until the virulence of the infection has passed away, when, after submitting to certain rites of purification, she is again free to mingle with her fellows. This dread of lying-in women appears to be widespread for the practice of shutting them up at such times in lonely huts away from the rest of the people is very common. Sometimes the nature of the danger which is apprehended from them is explicitly stated. Thus in the island of Tumbleo, off German New Guinea, after the birth of her first child a woman is shut up with her first infant for five to eight days, during which no man, not even her husband, may see her, for the men think that were they to see her, their bodies would swell up and they would surely die. Apparently their notion is that the sight of a woman who has just been big with child, will, on the principles of homoeo-

pathic magic, make their bodies big also to bursting. The Sulka of New Britain imagine that when a woman has been delivered of a child, the men become cowardly, weapons lose their force, and the slips which are being planted out are deprived of their power of germinating. Hence they perform a ceremony which is intended to counteract this mysterious influence on men and plants (pp. 150-151).

#### TABOOS OF ABORTION AND MISCARRIAGE

But the secretions of childbed is particularly terrible when it is the product of a miscarriage, especially a concealed miscarriage. In this case it is not merely the man who is threatened or killed, it is the whole country, it is the sky itself which suffers. By a curious association of ideas a physiological fact causes cosmic troubles! Thus, for example the Ba-Pedi believe that a woman who has procured abortion can kill a man merely by lying with him: her victim is poisoned, shrivels up, and dies within a week. As for the disastrous effect which a miscarriage may have on the whole country, I will quote the words of a medicine-man and rain-maker of the Ba-Pedi tribe: "When a woman has had a miscarriage, when she has allowed her blood to flow, and has hidden the child it is enough to cause the burning winds to blow and to parch the country with heat. The rain no longer falls, for the country is no longer in order. When the rain approaches the place where the blood is, it will not dare to approach. It will fear and remain at a distance. That woman has committed a great fault. She has spoiled the country of the chief, for she has hidden blood which has not yet been well congealed to fashion a man. The blood is taboo (*yila*). It should never drip on the road! The chief will assemble his men and say to them, 'Are you in order in your villages?' Someone will answer, 'Such and such a woman was pregnant and we have not yet seen the child which she has given birth to!' Then they go and arrest the woman. They say to her 'Shew us where you have hidden it.' They go and dig at the spot, they sprinkle the hole with a decoction of *mbendoula* and *nyangale* (two sorts of roots) prepared in a special pot. Then they take a little of the earth of this grave, they throw it into the river; then they bring back water from the river and sprinkle it where she shed her blood. She herself must wash every day with the medicine.

Then the country will be moistened again (by rain). Further, we (medicine-men) summon the women of the country: we tell them to prepare a ball of the earth which contains the blood. They bring it to us one morning. If we wish to prepare medicine with which to sprinkle the whole country, we crumble this earth to powder: at the end of five days we send little boys and little girls, girls that yet know nothing of women's affairs and have not yet had relations with men. We put the medicine in the horns of oxen, and these children go to all the fords, to all the entrances of the country. A little girl turns up the soil with her mattock, the others dip a branch in the horn and sprinkle the inside of the hole saying, 'Rain! Rain!' So we remove the misfortune the women have brought on the roads: the rain will be able to come. The country is purified!" (pp. 153-154).

These medical taboos are extremely interesting, for they correspond to the mechanism of taboos in general. That is, whoever does what is prohibited and violates the taboo, becomes himself taboo, probably as a defense of the social group in which he lives, because, according to the laws of contagious magic, he thus acquires the dangerous property of either infecting others or of inciting others to imitation. Hence the social ceremonials erected around the tabooed individual. This taboo prohibition of primitive peoples survives in the unconscious of civilized man out of which the neuroses develop, as for instance, the similar part played by the *délire de toucher* in the compulsion neuroses, the dread of the transfer of the taboo.<sup>6</sup>

However, even modern medicine, either from the standpoint of medical science as a whole or on the part of the physician who may unconsciously direct his observations and motives, is not entirely free from this loose and undirected thinking, a sort of attempt to harmonize conscious thinking with unconscious wishes. This, in itself, is a proof of that collective unconscious which links us to the primitive and archaic past.

<sup>6</sup> See on this point Freud's *Totem and Taboo—Resemblances between the Psychic Life of Savages and Neurotics*, 1918.

Such tendencies are shown for instance in the realm of pharmacology, where the success of a drug, which has no physiological action, is in reality only a psychotherapeutic effect.

It seems from analysis of this material, that the homoeopathic formula of like cures like, may have had its remote origin in sort of a symbolic rationalization of these primitive magic formulae. Hahnemann's theories, "the rent in the robe of Aesculapius," to use Osler's vivid expression, are probably a survival of the old Paracelsian doctrine of signature, namely,—that diseases or symptoms of diseases are curable by particular drugs which produce similar pathologic effects upon the body.

Thus the whole of medical magic is unconsciously governed by what men wish, instead of by the actual facts of disease. It is a sort of undisciplined or undirected primitive thinking, in contradistinction to modern scientific medicine, which is of the nature of a directed or disciplined thinking. Medical magic, like all magic, is man's belief in his own omnipotence, a feeling that his desires and wishes, will in some expected or unexpected manner, become realized.

There still exists in all of us, remnants of these beliefs or tendencies in magic, a sort of assurance in our omnipotence to cure disease, thus linking us unconsciously with the remote past and with the primitive medicine-man. The best example of this, is the blind and uninquiring use of medical lore which past centuries have accumulated, a lore based upon loose methods of thinking, before clear scientific conceptions begin to be formulated. If medicine advances in the future, it must be content with nothing but the facts, with disciplined thinking, and not with that autistic, undisciplined thinking in medicine, which Bleuler has so well described and which governs us by what we wish, by our unconscious attitude toward disease instead of by actual facts concerning disease. The various trends in medical history can be understood only if we

understand human beings, as mere academic speculations about scientific discoveries can never make them clear.

Thus the motives of magic are the wishes of men, in this case, the wish to cure that which was so mysterious to primitive man, namely disease, as disease more than any other calamity rendered him weak, easily assailable, and consequently of little or no value to the tribe. Since primitive man possessed great confidence in the power of his wishes, he had what is termed in modern psychology, an omnipotence of thought. Now this omnipotence of thought survives in all of us in certain phases of the practice of modern medicine, such as for instance in the use of suggestion, a belief that a wish to make a neurotic patient well will make him well, or in the administration of certain drugs or compounds to cure disease, substances which have no physiological effect, but which act in what may be called the materialistic carriers of our therapeutic wishes.

A further brief consideration of the survival of omnipotence of thought in modern medicine, in the form of the previously mentioned suggestion or suggestive therapeutics, may not be without interest. Suggestion is a form of undirected thinking, a sort of magic. It confers a feeling of omnipotence on the part of the operator, because like magic, the object of suggestion is an attempt to make non-existent the symptoms of a disease, particularly of a mental disease or a functional nervous disorder. This is clearly seen in the early history of hypnotism, when it was believed that the hypnotist transferred his vital force to the person hypnotized. The so-called "vital fluid" of the earlier mesmerists is merely an unconscious survival of the same belief which actuated the primitive medicine man in his attempts at medical magic, a belief which has played an extensive part in what may be termed the medical fantasies of mankind.

This omnipotence of thought in suggestion is motivated from unconscious thinking,

it is a personal, an egotistic, overestimation of the psychic processes as opposed to reality. In primitive medical magic and in modern suggestion, these thoughts are supposed to exert an unlimited effect on reality, a sort of a wish that some power can emanate from thinking which may have a favorable effect in the cure of disease.

Another interesting phase of medical magic which merits brief description, because so closely linked up with the previously described taboos of childbirth, is what is comprehended under the general term of *couvade*. The *couvade* may be described as that custom of primitive peoples, in which the father rather than the mother is confined to bed on the birth of a child, receiving the delicacies and careful attention usually given to the mother among civilized races and furthermore subjecting the father to a series of vigorous taboos in order to safeguard the welfare of the newly born infant.

According to Frazer, the *couvade* may be divided into two rather distinct groups:

1. The prenatal *couvade* which aims, according to the principles of homeopathic magic, at a magical transference of the mother's labor pains to the father, the latter pretending to undergo the pangs of childbirth.

2. The postnatal or dietetic *couvade*, in which the father pretends to undergo the physical experiences of the puerperium by simulating weakness and refraining from eating certain foods.

The psychological basis of the *couvade* is very interesting, as it concerns itself mainly with ambivalent feelings toward the wife, unconscious hostile feelings toward the newly born child who tends to supplant temporarily the father in the mother's affection and finally sort of a crude superstition that the husband's behavior will thus, through homeopathic magic, minimize the parturition pains in the mother. In modern times fragments of this archaic thinking seem to have survived, for instance, the objection formerly taken to the

use of anaesthetics in obstetrical practice, on the ground that the pain in childbirth was a punishment for sin and it was consequently undesirable to use any means to minimize or alleviate it.

On the transference of evil to inanimate objects, which is really the homeopathic principle of vicarious suffering, is based the magic cure of epilepsy. For instance, Frazer states:<sup>7</sup>

Fortunately we can shew that the analogy which is thus assumed to exist between the

<sup>7</sup> Frazer, *The Scapegoat*, pp. 68-69.

Roman custom and modern superstition is not merely a fanciful one: in other words, it can be proved that the Romans, like modern clowns, did believe in the possibility of nailing down trouble, in a literal and physical sense, into a material substance. Pliny tells us that an alleged cure for epilepsy, or the falling sickness, was to drive an iron nail into the ground on the spot which was first struck by the patient's head as he fell. In the light of the modern instances which have come before us, we can hardly doubt that the cure was supposed to consist in actually nailing the disease into the earth in such a way that it could not get up and attack the sufferer again.

## THE CADUCEUS AND ITS SYMBOLISM

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THE association of the Caduceus with Hermes, or Mercury, the messenger of the gods, and the patron of trade, seems to give no intimation of its right to become the accepted symbol of the medical profession. This right, indeed, has been called into question and the staff of Aesculapius with a single serpent twined around it, is regarded as the correct emblem. The symbolism of the serpent, however, is the same in both, but the winged Caduceus probably embodies an interesting combination of two primitive cults which were associated with the earliest conceptions of the healing art.

According to Garrison,<sup>1</sup> the Caduceus was first used as a medical emblem in the sixteenth century when Johann Froeben, publisher of medical books, employed it as a title page device; and a little later Sir Wm. Butts, physician to Henry VIII, used it on his crest. What suggested its use in these instances instead of the Staff of Aesculapius is not clear.

About the middle of the nineteenth century the medical publishing house of J. S. Churchill, of London, employed the Caduceus, and in 1856 it was used on the chevrons of hospital stewards in the United States Army. Later it was adopted by

the U. S. Public Health Service, and in 1902 by the United States Army as a designation of medical officers. The Royal Army Medical Corps use the staff with the single serpent which is the form now appearing on the button of the American Medical Association.

The most ancient illustration of the Caduceus which is known is upon the libation vase dedicated by Gudea, King of Lagash, to the god Ningishzida. This figure does not show the wings which usually appear upon the Caduceus of Greek and Roman mythology. This interesting vase was unearthed upon the site of Lagash and Frothingham thinks it indicates the Assyrio-Babylonian origin of the Caduceus which ultimately found its way from Accad and Sumer into the later Greek and Roman civilizations. The date of this vase he places at 3,500 B. C. which corresponds to the beginning of the dynastic period in Egypt. Other chronologies, however, place the accession of Gudea nearly a thousand years later, or about 2,450 B. C. which is about the beginning of the ninth Egyptian dynasty. But already in predynastic Egypt the symbol of the two serpents appears upon the monuments, although not in the identical form as upon the Lagash vase.

The question of the origin of civilization is still under discussion, but the weight of evidence indicates that the civilization of Egypt antedated that of the Mesopotamian states and was the source from which the latter derived much of their culture. We must therefore revert to the history of the older culture and the symbolism in which its conceptions found expression in order to reach an understanding of the real meaning of the winged Caduceus and of its association with the healing art. This leads us to a consideration of two very early forms of worship in which the struggling faith of man took form, serpent worship and sun worship.

The serpent cult originated very early in Egypt, the proto-Egyptians,<sup>2</sup> according to Elliott Smith, being serpent worshippers. Its origin is obscure and need not be discussed in this connection. What interests us here is its early association with the idea of health. Wake<sup>3</sup> says:

One of the leading ideas connected with the serpent was, as we have seen, its power over rain, but another equally influential was its connection with health. That the idea of health was intimately associated with the serpent is shown by the crown form of the asp, or sacred Thermuthes, having been given particularly to Isis, a goddess of life and healing.

The idea of this association persisted for many centuries and became widespread, appearing for example in Gaelic and German folk-lore as a belief that "the white serpent when boiled has the faculty of conferring medicinal wisdom." In the book of Genesis the serpent personifies the evil one and typifies subtlety and cunning; but in Exodus, Moses sets up a brazen serpent-image as a healing agent and it seems to have occupied a place in the worship of the Israelites down to the time of Hezekiah.<sup>4</sup>

Whether serpent worship originated in phallicism or whether the latter developed at some later time is difficult to determine, but at any rate the serpent very early be-

came a symbol of the phallus, the venerated emblem of life and regenerative power. The particular variety of serpent which seems to have possessed special significance was the *cobra di capello*; and it is clearly this serpent which is figured on so many Egyptian monuments. The sacred uraeus was doubtless the cobra and not, as Max Müller<sup>5</sup> suggests, the asp.

It is a curious and interesting fact that serpent worship and sun worship are found invariably and universally associated. The worship of the sun was probably of earlier origin. Primitive man soon traced the connection between sunshine and the blessings of life and health, and so set up the source of this beneficent influence as the main object of his worship. In his effort to personify in some familiar form this mighty and powerful being who every day moved across the heavens dispensing light and warmth, health and life, the early Egyptians "sought to describe it as a hawk which flew daily across the sky. Therefore, the most popular forms of the solar deity, Rê and Horus, have the form of a hawk or of a hawk-headed man,"<sup>6</sup> and at the beginning of the dynastic period the worship of Horus was general throughout Egypt. Instead of being represented always by the complete figure of a hawk, Horus is often symbolized merely by two outstretched wings, or by a winged disc. This winged disc was carried from Egypt to Assyria and Babylonia where it became a common and familiar emblem. In the predynastic period before the northern and southern kingdoms became united, serpent worship flourished especially in Lower Egypt and the capital Buto with its protecting serpent-goddess was the center of the cult, but in both kingdoms "the hawk-god Horus was worshipped as the distinctive deity of both kings." When the two kingdoms became united under Menes about 3,400 B. C., the symbols of the two cults began to appear side by side, and later the king who was the sun-god's representative upon earth adopted the sacred uraeus of the north, which he

wore upon his forehead. Elliott Smith<sup>7</sup> is of the opinion that this union of sun and serpent worship was the beginning of an association which later spread over the world. He says:

The fact that the dominion of the sun-god Rê (or Horus) was attained in the northern capital, which was also the seat of serpent worship, led to the association of sun and serpent. From this purely fortuitous blending of the sun's disc with the uraeus, often combined, especially in later times, with the wings of the Horus-Hawk, a symbolism came into being which was destined to spread until it encircled the world from Ireland to America.

The staff of Aesculapius with its single serpent had doubtless a similar Egyptian origin. The Aesculapian cult may be traced to Egyptian sources and the knotted staff with its serpent of later times was probably derived from the sacred uas staff. An interesting relief from the tomb of Amenemhet I, shows the hawk-headed god Horus presenting the crux ansata, the symbol of life, to the royal hawk which surmounts the Horus name of Amenemhet, behind which is a uas staff with a serpent twined around it, a symbolic representation of the author and giver of life and health conferring upon his earthly representative these divine powers.

The emblems peculiarly indicative of healing would naturally be associated with the special divinity presiding over health, and hence Hermes, who was worshipped in Boeotia as the averter of disease, and who was identified with the Egyptian Thoth, god of letters and of wisdom in general, who also was said to have invented the healing art, most appropriately carried them. There may be another significance in the association of the serpent with Hermes which we cannot overlook. Herodotus<sup>8</sup> says that he was figured by the Pelasgians, who were the prehistoric inhabitants of Greece, as a phallic deity, in which case when the phallic symbolism of the serpent is recalled we readily understand an association whose real meaning became lost when the original

phallic character of Hermes was forgotten. The function of Hermes as messenger later seemed to dominate his other functions, and the emblem which he bore at first because he was a god of healing, or a phallic deity, became the kerykeion, or herald's staff. The winged cap and winged sandals also are generally supposed to have been worn because he was the messenger of the gods, but it is quite probable that these as well as the wings of the Caduceus were originally the emblem of the sun-god Horus. A faint memory of the Horus origin of the wings of the Caduceus perhaps lingers in the myth which narrates that Hermes received the emblem in exchange for the lyre from Apollo, who was a sun-god; and it may be of some significance, too, that the hawk was one of the animals sacred to Apollo.

Whether the Caduceus in its present form originated as an Egyptian or as an Assyrian device, the symbolism which it represents dates back to predynastic Egypt. It bears a silent witness to the union of two ancient kingdoms which marks the beginning of history, and to the fusion of two primitive cults whose emblems indicated to man the divine source of life and health, while the use of these ancient emblems to symbolize the medicine of today brings us into touch across the space of more than fifty centuries with the crude primitive beginnings of the healing art and man's earliest striving after truth. The beneficent influence of the symbolic wings of the sun-god doubtless inspired the beautiful words of the prophet Malachi in which we may now see a new meaning and a deeper significance: "Unto you that fear my name shall the Sun of Righteousness arise with healing in his wings."

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## DR. GEORGE CHEYNE AND THE "ENGLISH MALADY"

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IT is an inveterate and almost universal custom to call a disease by a name indicating a foreign origin. It is difficult for the ordinary mind to look upon disease as a phenomenon arising naturally from native causes or to attribute it to anything but the hated foreigner or the act of a malign deity.

The latter conception gives us the *Lues deifica* or *divina* (epilepsy), the former made the French speak of *Lues Neapolitana* or *Mal de Naples*; the English, of the same disease, as *Lues Gallica*, *Morbus Gallicus* or French Pox; the Italians, the French disease;<sup>1</sup> the Russians call influenza, Chinese catarrh; the Germans, Russian pestilence; the French, Italian fever (they also speak of *gout italien*), or Spanish catarrh. In the war of 1812, the Americans called the "Cold Plague"<sup>2</sup> (almost certainly a malignant type of influenza with pneumonic complications), the Canadian fever; and but the other day we had the Spanish Flu, which is no more Spanish than German measles are German.

Perhaps the most amusing example of the tendency to call a disease after those who are disliked, is that in President Jackson's time in the United States, the Whigs and "Tyler Democrats" called influenza, "Jackson's itch," while Jackson's partizans called it "Tyler's grippe." *Der Englische Schueiss*, the English Sweating Sickness, was a term well known to the German medieval writers on medicine; although it had some right to the name English as it seems generally (if not always) to have begun in England, English physicians objected to the appellation as conveying an unjust accusation against their country.

But the case was different with the "English Malady." The responsibility

for that disease the English physicians admitted, if, indeed, they did not rather boast, England must assume.

Everybody till near the end of the eighteenth century knew what the "English Malady" was. I fear that few could now define or identify it. It ran all the way from "crankiness" from an overloaded stomach and *primae viae*,<sup>3</sup> lowness of spirits, "the spleen," "vapours," "melancholy," hysteria, hypochondria, to actual insanity of the melancholic type.

The literature of the sixteenth, seventeenth, and eighteenth centuries is full of references to "melancholy." A fine example is found in Burton's "Anatomy of Melancholy," a book of immense erudition, showing unwearied diligence in the examination of the older writers and great skill in the marshalling of facts as well as of fancies.

This "melancholy" was practically synonymous with the "English Malady"; it was supposed to be due to an excess of Black Bile, *melaina chole*, one of the four "cardinal humours" of the current physiology, the others being Blood, Phlegm and (yellow) Bile. While this black bile was wholly natural, the thought seldom was very remote that it was corrupt and dangerous to health. It must, however, be said that Galen "On the Natural Faculties" 11, ix, 135, does speak of black bile in the normal condition, and on p. 138 says that over-eating produces the abnormal forms of both black and yellow bile. Hippocrates "Aphorisms," 111, 20, places the melancholic between the maniac and the epileptic, and vi, 23, makes the (or at least a) cause, long-continued fear or downheartedness. Indeed, the Greek physicians not infrequently spoke of it as diseased; one of our



own old writers says that it "is sumwhat stynkyng & is clepid malancoli."

The most celebrated writer on the "English Malady" was Dr. George Cheyne, one of the earliest vegetarians.

Born in Aberdeenshire in 1671, he received a good classical and mathematical education, and subsequently became a pupil of the well-known Archibald Pitcairn who had been a professor of medicine at Leyden but was then in the same chair at Edinburgh. Pitcairn was a prominent, perhaps the most prominent, member of the "iatro-mathematical" school of medicine, whose theory of physiology and disease was largely mechanical, as contrasted with the chemical theory of the "iatrochemical" school. The latter school attributed to "fermentation," *i.e.*, what we would call chemical action, practically all the physiological actions of the body—"effervescence," and "vital spirits," are familiar terms in their books; the former looked rather to the solids, mechanical trituration, pressure of the intestines, motion of the thorax, etc.

Cheyne was a good mathematician. He wrote on "Inverse Fluxions," what we call the Integral Calculus,<sup>5</sup> and he adopted Pitcairn's system with enthusiasm. He published an account of Pitcairn's theory of fevers, and had a controversy with Dr. Charles Oliphant on the subject. Coming to London, he was made F. R. S. in 1701, and obtaining the degree of M. D. (it is not known from what University), he began the practice of medicine there.

Having theretofore led a sedentary and temperate life, he made an entire change on coming to London. As well for business reasons as for pleasure, he frequented the society of free livers and bottle-companions; and with his Aberdonian constitution, "he bore for some years a course of tavern dinners and other social festivities."

But the inevitable result followed; his health gave way, he became corpulent and unwieldy; and like a wise man, he changed his mode of life. Living a temperate life, with a very restricted diet, he soon

recovered his health and figure, if he did lose much of his practice and many of his jolly friends. He took a course of the waters at Bath; and after alternating for some time, wintering at Bath and summering in London, he took up his permanent residence at Bath and continued the diligent practice of his profession. Abandoning his restricted, for a moderate diet, he became corpulent again, weighing, it is said, 32 stone (448 pounds); but he recovered through the use of a milk and vegetable diet, living for sixteen years on bread and milk alone. He died in 1743, at the age of seventy-two.

His best known work—he wrote on mathematics, natural philosophy, and religion as well as on medicine—is "The/English Malady/or a Treatise/of/Nervous Diseases of all Kinds/as/Spleen, Vapours, Lowness of Spirits, Hypo-/Chondriacal, and Hysterical Distempers, &c." (A former owner of my copy has added "Epilepsy.") It was first published in London, 1733; my copy is of the 6th edition, London, 1735 (not 1739 as the D. N. B., x, 219, has it); it is an 8 vo. of 370 + xxxii + xvi pages, contemporary calf, gold-tooled.

Of the three parts, the first is "On the Nature and Cause of Nervous Distempers"; the second, "Of the Cure of Nervous Distempers"; and the third, "Variety of Cases that Illustrate and Confirm the Method of Cure with the Author's Own Case at Large." On the general title page he quoted Vergil's lines:

. . . Facilis descensus Averni Sed revocare  
Gradum, superasque evadere ad Auras Hic Labor,  
hoc Opus est . . . . .<sup>6</sup>

The truth of which so many have found by bitter experience. To the first part he prefixes Persius' somewhat complimentary:

Non te quaesiveris extra—Judge for yourself.<sup>7</sup>  
to the second, Horace's lines:

. . . . . Nunc retrorsum  
Vela dare, atque iterare cursus  
Cogor relictos. . . . .<sup>8</sup>

Now I am compelled to sail back and return to the courses which I had abandoned—

a very apt motto indeed. To the third part, he prefixes Homer's description of the noble Scythian Hippomolgi, "Mare-milkers:"

Simple in maners, poor, living on milk, the most honorable of men.<sup>9</sup>

In the preface, Cheyne has no hesitation in attributing the prevalence in England of the English Malady to "the moisture of our air, the variableness of our weather (from our situation amidst the ocean), the rankness and fertility of our soil, the richness and heaviness of our food, the wealth and abundance of the inhabitants (from their universal trade), the inactivity and sedentary occupations of the better sort (amongst whom this evil mostly rages), and the humour of living in great, populous and consequently unhealthy towns"; and he computes these nervous disorders to make almost one-third of all the complaints of the people of condition in England.

When he comes to giving the sources and causes, the etiology in a word—he absolutely ignores what had originally been considered the cause, namely, excess of black bile. Dr. John Quincy, an apothecary of London, in his lexicon, "Physico-medicum," published in 1717 (my copy is of the edition of 1722), said: "Melancholy (is) supposed to proceed from a redundance of black bile; but it is better known to arise from too heavy and viscid a blood." Cheyne admits as the first of the three most universal and comprehensive sources and causes of chronical distemper, a "glewiness, sizyness, viscidty or grossness of the fluids either accidental and acquired . . . or original and hereditary . . .,"<sup>10</sup> the other two being "some sharpness or corrosive quality in the fluids" and "a too great laxity or want of due tone, elasticity and force in the fibres in general or the nerves in particular."

But as to the general causes of nervous diseases, Cheyne gives:

(1) The solids and consequently the fibres and nerves . . . becoming either too dry or

too moist; (2) by improper, hard, solid and noxious particles getting into their substances which may gradually alter, spoil and stop their natural texture and functions . . . whether vibration, intestine action and reaction or collision of their small parts, or however they act or are acted upon to convey and propagate the sensations or influences of external bodies to the seat of the intelligent principle.

The third cause is like Dr. Quincy's theory:

(3) From the interruption, interception and stoppage of their vibrations, tremors and the intestine action of their component particles by the greater pressure of too viscid juices in the blood vessels and the other tubes that contain the animal juices surrounding these fibres or nerves . . . ; (4) from the natural or acquired weakness and laxity of their tone and elasticity; whether from a natural or accidental ill structure. . . of themselves or the other organs of the body or from any external injury received on them.

And he concludes that:

All nervous distempers whatsoever, from yawning and stretching up to a mortal fit of apoplexy . . . (are) but one continued disorder or the several steps or degrees of it arising from a relaxation or weakness and the want of a sufficient force and elasticity in the solids in general and the nerves in particular in proportion to the resistance of the fluids in order to carry on the circulation, remove obstructions, carry off the recrements<sup>11</sup> and make the secretions.

The doctrines of the iatromathematical school are plainly apparent: "The disorders of the solids are chiefly what are to be had regard to," not the bad state of the fluids which is important only in its effect upon the solids.

There is no difficulty in translating Cheyne's language into modern terminology. A nervous affection depends upon the state or condition of the nerve-fibres. If they are (a) atonic (b) overdry or overwet (c) infiltrated with foreign solid particles or (d) overpressed by the blood or other fluid,

their functions are interrupted and nervous disease follows, more or less severe.

He recognizes, too, that there may be nervous affections produced by trauma.

The classification of nervous diseases is interesting; they are:

1. Those which are attended with a partial or total loss of sensation for some time; and include lethargic dullness, fainting fits and complete apoplexy.

These arise from a Grossness, Glewiness or Viscidity of the animal juices . . . which obstructs the Glands, the serous Pipes and the capillary Blood vessels, and thereby breaks, interrupts and weakens the vibration and Tremors or whatever else is the action of the nervous Fibres properly so called.

2. Those which are attended with a loss of voluntary motion or "shakeing" in any particular organ or limb or in all the instruments of voluntary motion.

Such are all those of a paralytic kind from an universal palsy, a hemiplegia . . . or of a particular limb to a deadness, numbness, weakness, or coldness . . . this class . . . owes its origin to a weakness, imbecility and loss of due tone in the nervous system . . . whereby the soul is disabled to communicate its energy a principle of motion to the muscular fibres.

3. Those attended thus:

With spasms, cramps, convulsions or violent contractions of the muscles . . . all of the convulsive tribe from hypochondriacal and hysteric fits or the convulsions of the epileptick kind down to yawning and stretching. These seem to be produced by some hard pointed concretions, saline particles or some noxious acid or acrimonious steam, wind or obstructed perspiration lodged in the small vessels or upon any place where there are the greatest collections of nerves, viz., in the alimentary tubes, the cavities of the brain, the trunk of the body or the interstices of the muscles where, twitching, stimulating and wounding the nerves or their membranes, it raises a general disorder in the whole nervous or sensible fibres whence the same is derived upon the whole muscular system, and there provokes violent throws,

contractions, cramps, and spasms, until, tormenting and wearying out the elastic fibres at last by these strugglings and efforts, the destructive matter is discharged or removed.

(He compares these phenomena to earthquakes.)

There follows a somewhat elaborate description of the true nature of the fibres and nerves, and of "animal spirits," a whole system of philosophical conjectures, and of symptomatology.

Part II deals with the treatment of nervous distempers; and Cheyne has three "Intentions,"<sup>12</sup> of which the first is to thin, dilute and sweeten the fluids and destroy their viscosity and "glewiness"; the second, to break and dissolve the saline, acrid and hard concretions, and make the juices soft, sweet and balsamic; the third, to restore the tone "to crisp, wind up and contract the fibres of the whole system."

For the first "Intention," he uses "Mercury and its preparations, calomel, mercury alcalisated, Precipitat per se, Quicksilver, Silva-Water, Aethiops Mineral, Cinnebar of Antimony, Antimony Diaphoretic, Bezoar Mineral, Crude Antimony, Bezoardicum Joviale, Salt of Tin, Ens Veneris," &c. Also "Guajacum, Sassafras, Sarsaparilla, Lignum Nephriticum, Saunders, Aloes," and certain Fixed Salts, such as, Salts of Tartar, Salts of Wormwood, Broom, Fern and antiscorbutic plants.<sup>13</sup>

Calomel is to be used as "an Alterative only and not an Evacuant . . . two, three or four grains, once, twice or three times a day."

The successful termination of the first "Intention" is to be determined by the state of the blood taken by bleeding, a few ounces only: "if the serum be clear or not too tawny . . . the first intention has been pursued sufficiently."

For the second "Intention," Dr. Cheyne recommends water, "Gum Ammoniacum, Galbanum, Assafoetida, Sagapenum, Myrrh, Guajacum, Camphire, Castor, Amber, Salt of Hartshorn, Salt of Amber, Salt and Spirit of Human Skull and of Raw Silk, Castile

Soap, Saffron, Garlick, Horse-Radish and the like," to drink freely of mineral waters, and in want of these, Barley water, syrup of marshmallows, Decoction of Comfrey-Roots, Syrup of Mulberries and Sweet Cow-Whey.<sup>14</sup>

When the symptoms are abated and tolerable ease is obtained, the third "Intention" follows: "Bitters, aromatics and Chalybeats . . . Jesuits' Bark, Steel, Gentian, Zedoary, Cassamunair, Calamus aromaticus, snakeweed, Contrainerva, Cinamon, Winter's Bark, Chamomile Flowers, Wormwood and Century-Tops, Terra Japonica . . . Oak Bark and its offspring, the Mistletoe and Acorns"; Jesuits' Bark being much preferred.<sup>15</sup>

Now follows the most important and useful part of the book, although it is to be doubted if either Dr. Cheyne or his contemporaries thought so. The aetiology and pathology of the times were erroneous, ludicrously so to a modern physician; the treatment was not fated to last, but the "Regimen of Diet proper" at that time, is proper today. It is probable that the undoubted success of Dr. Cheyne in the treatment of disease, nervous or otherwise, depended much upon his "Dietetic management." The solid food should be "tender, light and easy of digestion," the quantity "proportioned to the strength of the digestion and the waste and decay of the fluids from exercise or body action or to the present fulness of the habit." Opiates and anodynes are prohibited, and in many cases a total milk and vegetable diet is recommended. Exercise should be "without the least exception or limitation, but so far as the strength can admit . . . without weakening, fatigue or hurry of spirits." Horse-back riding is the best; next, riding in a chaise or chariot; but "walking . . . will answer the same end and purpose, as well as any, and may be more readily and easily used . . . within doors and without, in winter as well as summer." Hunting, shooting, bowls, billiards, shuttlecock, &c., are recommended for those who like sports; strongly working the arms backward and forward, the flesh brush, &c. &c.

Remembering what "Nervous Distempers" were in his terminology, few will dispute Cheyne's statement—"A vicious liver seems to be one of the primary and immediate causes of nervous Distempers," although few will agree with him that "The liver is the organ designed by nature . . . to suck out, draw off and convey into the common shore<sup>16</sup> of the Body (the Intestines), all the Poison, malignity and destructive Part of high rank foods and too great a Quantity of rich Liquor taken into the Habit."

The author deals with "vapours" and their treatment, nervous disorders of the "Convulsive Tribe," nervous colics, palsy, St. Vitus's dance and other paralytic disorders, and closes this part with a chapter on Apoplexy and Epilepsy.

He makes three kinds of Apoplexy: (1) Symptomatic, "from a translation of the gout, rheumatism, etc."; (2) accidental (*i.e.*, traumatic); (3) acquired, "arising from an apoplectick disposition or discrasy,"<sup>17</sup> proceeding from intemperance and excesses, laziness and neglect of the non-naturals . . . ."

The immediate causes are two: (1) Extravasation of blood, traumatic or otherwise, and (2) "Oozing out thro' the sides of the relax'd and worn out capillary Blood vessels of a thin putrid serum . . . chiefly with gross and full feeders . . . those who are too free with strong and spirituous liquors and are consequently very inactive and lazy."

Epilepsy and epileptic fits are graphically described; and we have the comforting statement that "Dr. Taylor, of Croydon, cured himself entirely and absolutely of the most violent, constant and habitual epilepsy<sup>18</sup> that perhaps ever was known, after having, in vain, tried all the methods and medicines advised by the most eminent physicians of his time, by a total diet of milk without bread or any other vegetable or thing (besides a spoonful of compound peony water sometimes to prevent its curdling), confining himself to a pint in the morning, a quart at noon, and a pint at

night, of the milk of grass fed cows in the summer, and of those fed with hay in the winter."

## NOTES

<sup>1</sup> Fracastoro who invented the word "syphilis" and used it first in his "Syphilitidis sive morbi Gallici libri tres." (Verona, 1530), speaking of the disease as connected with the invasion of Latium (Italy) by Charles VIII, King of France in 1404 and 1495, says: ". . . in Latium vero per tristia bella

Gallorum irrupit nomenque a gente recepit." Lib. I, vv. 5, 6.

"It broke into Italy in fact by the unhappy wars of the French and took its name from that nation."

<sup>2</sup> See my article, The Cold Plague of the War of 1812-14. *The Lancet*, London, March 11, 1922, pp. 512, sqq.

<sup>3</sup> "Prima via" is a favorite expression of Cheyne's for the alimentary canal—the "Common Shore" (Sewer) of the body as he calls it.

<sup>4</sup> In his book, "An Essay on Regimen," London, 1740, Cheyne attributes to the mother, the juices or fluids of the body "because the solids. . . come from the father alone and it is only in and by them that health, long life, and serenity are to be had" (p. iii).

<sup>5</sup> It was not until the first quarter of the nineteenth century that Newton's Fluxions and Fluents were displaced at Cambridge by Descartes' Differentials and Integrals. This was due to the efforts of Sir John Herschel, (Dean) George Peacock and Charles Babbage—the chief symbol of the fluxional method being a dot, and that of the differential method a "d"; this change was said to be from the dotage of Newton to the deism of Descartes.

<sup>6</sup> Vergil, *Aeneid*, Lib. VI, vv. 126, 128, 9 (the more usual reading is "Averno," but Aveni has good authority).

"Easy is the descent to the lower regions

But to retrace the steps and to rise to the upper

That is the task, that the difficulty."

<sup>7</sup> Persius, *Satires*, I, v. 7.

"Do not seek further" for a judge, examine things for yourself and form your own opinion.

<sup>8</sup> Horace, *Carmina*, Lib. I, 34, vv. 3-5, Horace's words when he was converted from being "Parcus Deorum cultor et infrequens," by hearing thunder from a cloudless sky.

<sup>9</sup> Homer, *Iliad*, N, v. 6.

<sup>10</sup> Fracastoro, *Syphilitidis*, Lib. ij, vv. 67-70, speaking of the hope of recovery from syphilis says:

" . . . . . tibi sit morbo spes major in illo  
Sanguine qui insedit pure; verum quibus, atra.

Bile tument, spissoque resultant sanguine venae

Major in iis labor est, pestisque tenacius haeret."

"You have the greater hope in this disease whose

blood is pure; for those whose veins swell with black bile and beat with thick blood, the task is greater, and the disease clings more tenaciously." His views were those of practically all the best physicians of his time and long after. I give but one example: Perhaps the best French writer on venereal diseases in the eighteenth century—at least second to the celebrated Astruc only—was Fabre—in his "Traité des Maladies Vénériennes," 4th Ed., Didot, Paris, 1782, he says (Pref. p. vii): "Tous les Auteurs ont considéré le virus vénérien comme un délétere qui épaisit toutes nos liqueurs et particulièrement la lymphé"; and he describes the action of mercury, "en brisant, atténuant les fluides, trop épais et en rétablissant ainsi la liberté de la circulation jusques dans les plus petits vaisseaux."

<sup>11</sup> "Recrement" properly means a fluid which is separated from the blood and is again in part absorbed into it, as the saliva or bile; but it is often used as synonymous with excrement. It corresponds with the "perissoma" of the Greek physiologists.

<sup>12</sup> "Intention" was properly the object aimed at in treatment, the medieval "curiationis intentio"; but it had the secondary meaning of the method of treatment itself. In my time, we had wounds healing with the first intention, i.e., without granulation, or with the second intention, i.e., with granulation.

<sup>13</sup> Cheyne's preference was for Galenical over Chymical medicines (the latter produced by the "torture of fire," the use of which was very largely due to the influence of Paracelsus); he was, however, rather catholic in his practice as will be seen by comparing his list of medicines with Dr. Quincy's "Pharmacopoeia Officialis et Extemporanea," London, 1749. Calomel is of course the "mighty (or mite) chloride"; Mercury alicalsiated is "mercury killed with any calcined body" (as Cheyne puts it in his "Essay on Regimen," London, 1740, p. 112) and so become alkaline. Quincy (p. 100) gives the prescription of both the London and the Edinburgh Dispensatory—3 drachms purified Quicksilver, 5 drachms of prepared Crabs-Eyes, rubbed in a glass mortar till they are incorporated; and he says "crabs-eyes are a stony concretion in the head of the crawfish and not the eye of the creature" (p. 95). Precipitate per se, is the dangerous white precipitate in Cheyne's time abandoned even by the Vienna School; Silva water or Selva water, a liquid preparation of mercury; Aethiops Mineral, prepared from mercury and sulphur ground together and sometimes heated in a crucible—there were many kinds: Cinnabar of Antimony, Sulphite of Antimony; Bezoar, the concretion from the stomach of certain deer, goats, llamas, guanacos, etc. esteemed almost as a panacea; Bezoardicum Joviale, a preparation of tin—anything considered an antidote to poison was bezoardic, while Joviale came from Jove

or Jupiter, in Alchemy, Tin, as in Astrology the planet Jupiter.

Ens Veneris "sublimated from equal parts of the calcined powder or Cyprus vitriol and of Sal Armoniac"—literally "Venus Essence" or "Essence of Copper" (Venus being in Alchemy, Copper, as in Astrology the planet Venus)—Cyprus vitriol was Copper sulphate, Sir Kenelm Digby's "Powder of Sympathy."

Guaiacum had been in Fracastoro's time the great specific for syphilis, but by Cheyne's time it had lost its vogue and mercury was almost universally administered (except by quacks). The enormous number of mercury preparations in use is indicated in a passage from Fabre's work, mentioned above (Note 10). He says (p. 28):

"Il y a peu de remèdes sur lesquels on ait fait tant de recherches, que sur le mercure . . . On l'a transformé d'une infinité de manières, croyant toujours le trouver plus spécifique sous une forme que sous l'autre: de-là ce nombre infini de préparations mercurielles qu'on donne intérieurement, comme les différentes especes de précipité, d'aethiops, de panacées, de dissolutions, de sublimés, et tant d'autres compositions. . . ."

"There are few remedies upon which so many researches have been made as upon mercury. . . . it has been transformed in an infinity of ways, in the constant belief that it will be found more specific in one form than another, hence the infinite number of preparations of mercury which are given internally, such as the different kinds of precipitates, aethiops, panaceas, solutions, sublimates and so many other compounds."

Lignum Nephriticum was the wood from which the sovereign Nephritic Tincture was made. In early times it was said, like Guaiacum, to come from New Spain, being the Coatli of Hernandez; but later, and in Cheyne's time, it was generally the wood of the Horseradish tree. *Moringa pterygosperma*—the tincture was administered in diseases of the kidneys.

<sup>14</sup> Salt and Spirit of Human Skull were frequently administered—the moss from a human skull, "usnea" as it was called, was the active element in Paracelsus' Weapon Salve or Vulnerary Ointment which, applied to a weapon, healed the wound which had been made by it.

Quincy says p. 78: "Cranium Humanum, *Man's Skull*. It is to be feared this has obtained a place in medicine more from a whimsical philosophy than any other account; and therefore we find it appropriated to different tempers of the head chiefly; as apoplexies, epilepsies, and the like. It is an ingredient in *Riverius's Pulvis de Guttata*, but of little service.

A spirit indeed is made from it, and a volatile salt, in the same manner as from hartshorn; from which they differ so little, as not to be distinguished even by the operator." It was, however, officinal.

Sagapenum is a bitter red to yellow gum with an odor like garlic, formerly used as an antispasmodic and emmenagogue; it is the juice of the *Ferula Persica*.

<sup>15</sup> Jesuits' Bark is *Cinchona*; Zedoary is the same as Cassamunair.

Cassamunair, Cassumunar, etc., the tuberous root of an East Indian plant probably *Curcuma aromatica*: it is warm, bitter and aromatic like ginger.

*Calamus aromaticus*, an eastern aromatic plant or plants, perhaps the *Andropogon Schoenanthus*, the sweet-scented lemon grass of Malabar *not* the native English Sweet Flag or Sweet Rush, *Acorus Calamus* (see Dr. Quincy's "Pharmacopoeia").

Snakeroot any of the *Sanguinarias*. *Contrainerva*, the root stock and rhizomes of the *Dorstenia Contrainerva*, a native of tropical America, a stimulant and tonic and antidote to snake-bites.

Winter's Bark was so called from Capt. W. Winter who first brought it to England. It is an astringent and aromatic bark from the *Drimys Winteri* or *Winterea Aromatica* growing on the Western parts of America from Mexico south to Cape Horn. It is often replaced by the bark of *Canella Alba* (or *Winteriana*) or *Cinnamodendron Corticosum* of the West Indies. *Paratudo Bark* is also a variety.

Century is *Centaurium Chlora perfoliata* or *Erythraea*, *Centaureum*; *Terra Japenica* or *Japonica*, *Catechu*.

<sup>16</sup> See Note 3.

<sup>17</sup> The health was believed by most ancient and medieval physicians to depend upon the proper "crasis" of the humors or fluids of the body—"krasis" being the Greek word for a mixture in which the ingredients lose their identity, not like a mixture of peas and beans which would be called "mixis." *Dyscrasis*, *dyscrasy*, *discrasy*, means a mixture of the humors in wrong proportions, the opposite of *eucrasia*, the Latin "Temperamentum."

<sup>18</sup> In his "Essay on Regimen" Cheyne says, p. 45: "It is not easily to be credited what wonderful effects even in the most desperate and universally condemn'd to death distempers, I have seen performed by a Regimen of Milk and Seeds only, duly and obstinately persisted in, especially in persons under fifty. Epilepsies totally cured, hereditary Gouts almost eradicated, universal Lepers made clean, Stones in the Bladder and Kidnies laid quiet, Cancers healed or palliated, ulcerated Lungs made sound and scirrhus Livers made puerious."

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PASTEUR IN HIS LABORATORY





## EDITORIALS

### LOUIS PASTEUR (1822-1895)

This year marks the centenary of the birth of the man to whose researches are due the substructure of modern medicine in all its branches. It is unnecessary to outline his biography. The events of his life should be familiar to everyone, physician or layman, through the pages of one of the most interesting biographies ever published, the "Life of Pasteur" by Vallery-Radot. In its pages may be read in fascinating sequence the steps by which the son of the humble tanner at Arbois worked out, one after another, problems which changed the whole aspect, not only of science but of many branches of industry of vital importance to the welfare of the world.

Pasteur's first notable research was made in the domain of crystallography wherein he established the true nature of the tartaric acids and their salts. A few years later he disproved once and forever, by a series of brilliant yet seemingly simple experiments, the possibility of spontaneous generation. To us this fallacy seems so inane and so clearly impossible that it is hard to realize how acutely it occupied the minds of scientific men in the first half of the last century, and our admiration for Pasteur's genius is heightened immensely if we but glance at the entirely original experiments by which he completely shattered a so firmly held error.

The importance of the wine industry to the people of France could hardly be overestimated. It was threatened with great loss because of the prevalence of acid fermentation in the wines. Interested in the matter through his studies in tartaric acid and the tartrates, Pasteur pursued his researches on fermentation and early in 1864 announced that he believed that fermenta-

tion was the result of the activities of minute living organisms, and that these activities could be checked and wine preserved by the destruction of these organisms, by the action of heat and subsequent prevention of the access of air containing them, to the wines. The process became immediately famous under the name of "pasteurization."

A curious instance of the tenacity with which even scientists of the greatest standing will cling to erroneous opinions and decline to be convinced even by absolute demonstration is to be found in the attitude of Liebig, one of the greatest chemists of his time. In 1845 he had written: "As to the opinion which explains putrefaction of animal substances by the presence of microscopic animalculae, it may be compared to that of a child who would explain the rapidity of the Rhine current by attributing it to the violent movement of the numerous mill wheels of Mayence." In the summer of 1870 Pasteur visited Liebig at Munich for the express purpose of convincing him that fermentation and putrefaction were due to the activities of minute living organisms. Liebig received him courteously but refused to discuss the matter alleging indisposition.

From 1850 to 1865 the silkworm industry in France was threatened with absolute ruin. A disease had appeared in the silkworm nurseries which destroyed eggs, worms, chrysalides, and moths alike, and for which none of the many suggested remedies was of the least avail. It was characterized by the appearance of little black spots, hence receiving the name *pébrine* from their supposed resemblance to pepper grains. The great French chemist Dumas was also a Senator, and came from the town of Alais, one of the centers of the silkworm industry. Knowing Pasteur inti-

mately and recognizing his powers of investigation he insisted that he should be sent to Alais to study the problem and if possible ascertain the cause and provide a remedy. Pasteur hesitated, stating that he had never even touched a silkworm, but at last consented to undertake the task.

Installing himself and his assistants in a small temporary laboratory at Alais, Pasteur threw himself with his accustomed ardor into his new task. He succeeded after overcoming many difficulties and much opposition from interested growers, in proving that *pébrine* was a parasitic disease which could be absolutely eliminated by destroying all eggs, cocoons or worms which showed any sign of the black spots which indicated the presence of the infecting organism.

While in the midst of his arduous labors to save the silkworm industry Pasteur at the age of forty-six was stricken with a hemiplegic attack which for a time threatened his life. He resumed his labors during his convalescence and the subsequent years of his life proved among the most useful to the world.

Pasteur was an ardent patriot. After the war of 1870 he returned to Bonn the diploma of the honorary degree of Doctor of Medicine which had been conferred on him by that University in 1868, and he sought to serve his country by researches on beer which might make French beer rival that which the Germans had heretofore excelled in making. For this purpose he visited London and studied the English methods of brewing. As a result of his labors he came to the conclusion that the souring of beer, which was the chief cause of the poor quality of that manufactured in France was due to the action of certain ferments and that beer could be sterilized by heating just like wine, without impairing its quality. This "pasteurization" of French beer resulted in a great improvement in it and was of much value to the brewing industry.

The story of the application of Pasteur's ideas on the roll of living organisms in

fermentation and putrefaction to the causation of disease and to suppuration in wounds has been often told, nowhere better than in the pages of Vallery-Radot. To the Englishman, Lister, is due their first practical use. In 1865 he began his labors which instituted the era of antiseptic surgery. There is nowhere a more strikingly interesting episode in the history of medicine than the story of the receptiveness with which Lister seized and adopted to surgical purposes the results of Pasteur's work, and their mutual cordiality in the matter was a splendid example of what the relations of scientific men should be towards one another. It is curious that the leaders of French surgery, in spite of the terrible mortality from sepsis during the Franco-Prussian war, did not awaken to the value of the teachings of the great scientist in their midst. Pasteur was not a doctor of medicine and there existed in the French profession at that time marked jealousy of scientists who trespassed in medical fields. Even men like Claude Bernard, the great physiologist, were looked upon askance by those whose profession would most greatly benefit by their laboratory researches.

In 1873 Pasteur had been elected by a majority of but one vote, one of the Free Associates of the Academy of Medicine. Towards the end of the war Alphonse Guérin had stated his belief that the germs discovered by Pasteur might be associated with suppuration or putrefaction in wounds, and he had greatly lessened the mortality in his wards by a crude sort of antiseptics, but his voice was unheeded, as was that of Lucas-Championnière who visited Lister's wards at Glasgow in 1869 and came back to Paris full of the new idea. The first studies made by Pasteur himself on the germ origin of disease resulted in his famous discovery that the cause of anthrax was the organisms which had previously been observed by Davaine.

In 1878 the famous surgeon Sédillot, then seventy-four years old, wrote a paper "On the Influence of M. Pasteur's Work in Medicine and Surgery," in which he de-

manded recognition by the medical profession of the new era which would date from Pasteur's discoveries, and in which he incidentally introduced for the first time the word "microbe" as applicable to the minute beings which had now assumed such formidable prominence in the world.

In the early eighties were held the dramatic experiments on a large scale at various farms which proved once and for all the efficacy of the vaccines which Pasteur had evolved in the cure of chicken cholera, splenic fever and swine fever. Henceforth, these plagues, which had caused immense financial loss wherever they prevailed, were conquered. In 1884 Pasteur at the International Medical Congress at Copenhagen announced the great results of his studies in hydrophobia, that it was due to a specific microorganism, and could be cured by an attenuated virus; and on July 6, 1885, he successfully inoculated his first human subject, Joseph Meister, a little Alsatian, who had been bitten by a dog with rabies.

Although he was not destined to continue in person to add to the list of marvelous investigations which had so wonderfully changed the whole aspect of certain great industries and completely revolutionized medicine, Pasteur had the supreme joy of seeing ample provision made to carry on the work of his life to further triumphs. In 1888 the splendid monument to his fame, perhaps the greatest and most valuable tribute ever made to a man of science, the Pasteur Institute, founded by popular subscription, was opened. During his declining years he could see with his own eyes the brilliant early years of the famous research institute in which Roux, Calmette, Chamberland, and others of his famous and devoted co-workers were working, as he had taught and trained them to do.

When Pasteur passed away, on September 28, 1895, he might well have not only said but felt *nunc dimittis*. He had lived through many hard struggles to behold his own glorious apotheosis.

## RICHARD BRIGHT

It is curious to reflect how frequently some discovery preserves a name to posterity when little or nothing is known of the life or any other achievements of the original owner. This is particularly striking in a study of medical nomenclature. Thus the names in daily use of many symptoms and diseases recall those of numerous deceased medical worthies who would otherwise by now have passed into complete oblivion. One of the many advantages brought about by the interest in medical history is the light which has been thrown on the characters and labors of those whose labors in their profession have led to this posthumous apotheosis. By research into their lives we generally find that those who have been thus honored were worthy representatives of the science and culture of their time and that although their names have become associated with but one event or discovery, their lives were full of hard work and their title to fame not fastidious.

Thus, Richard Bright (1789-1858) is chiefly known as the discoverer of the disease of the kidneys which bears his name, and the immense amount of research which led up to his discovery with the many observations which he made incidentally and communicated in many remarkable papers. His two volumes of "Reports of Medical Cases" are full of valuable observations on many morbid conditions, and he was a frequent contributor to *Guy's Hospital Reports*. He was elected Assistant Physician to Guy's in 1820, and Physician in 1823, serving in that capacity until 1843, when he was made Consulting Physician. During many of these years he is said to have passed more than six hours daily working in the wards or autopsy room of the Hospital, besides lecturing on medicine and materia medica. He also had an enormous practice and was the leading London consultant of his day.

It is not our intention to direct our reader's attention so much to Bright's pro-

fessional achievements as to recall the fact that he also was a traveler and wrote most entertainingly on other than medical topics. While studying medicine at Edinburgh, he went with Sir George Stuart Mackenzie and Sir Henry Holland, later also a distinguished physician though not eminent for scientific acquirements, on a voyage to Iceland, of which Mackenzie published an account, for which Bright wrote the chapters on zoology and botany. On his return he resumed his medical studies, receiving his degree in 1812.

Two years later, in 1814, Bright started off on a long tour through Belgium, Holland, and Germany. A desire to enjoy the excitement of the Congress of Vienna induced him to go from Berlin to that city, and thence he traveled through Hungary, returning to Belgium, and arriving at Brussels two weeks after the battle of Waterloo. In 1818 he published a book, "Travels from Vienna through Lower Hungary; with some remarks on the state of Vienna during the Congress in the Year 1814," a copy of which is now before me and has proved most delightful reading.

Bright's description of Vienna during the meeting of the Congress is one of the most vivid pictures of that interesting occasion that has been preserved to us. He saw Marie Louise and her little son, the King of Rome, L'Aiglon, to whom he was presented, and by whom he was greatly charmed. He went to many social gatherings where he saw the numerous kings, potentates, and statesmen, who were striving to form a "league of nations" and whose efforts seem like a rehearsal of some more recent historic events; and he comments shrewdly on the difficulty of ascertaining historic truths when in the very center of a historic event, so many false statements being current that no one on the scene could pretend to know the facts.

Leaving the somewhat hectic atmosphere of Vienna, Bright made a long journey through Hungary, a country at that time very little frequented by English travelers.

He was greatly interested in the numerous gypsies, or Cyganies, as they were usually termed, and devotes many pages to an account of them. He learned many of their words and phrases and was delighted on returning to England to find that they were the same in the language of some gypsies whom he encountered there. The social status of the various ranks in Hungary were also a matter of which he found much to say. The poverty and ignorance of the peasants formed a marked contrast to the wealth and almost medieval feudal power of the nobility. Many of the great landowners among the latter possessed the right of administering so-called justice, and he saw in the castles the most loathsome prisons into which men were thrust and kept chained for years.

Bright's book has become very rare but it is well worth reading, not only from interest in the author, but because of its intrinsic merit. It is illustrated with some very handsome copper plate engravings and contains several maps.

#### AN EGYPTIAN MEDICAL TREATISE OF THE SEVENTEENTH CENTURY B. C.

The New York Historical Society's *Quarterly Bulletin*, April, 1922, contains a most interesting description by James Henry Breasted of the Edwin Smith Papyrus, an Egyptian manuscript written in the seventeenth century B. C. The Papyrus was purchased in Egypt in 1862 by Mr. Edwin Smith, a pioneer American student of Egyptology, and presented to the New York Historical Society by his daughter, Miss Leonora Smith. Professor Breasted describes it minutely and gives a very complete analysis of its contents. The Papyrus is made up of several parts, the most important of which contains, as Professor Breasted says, "the most carefully made and most systematically arranged observations on the human body and its

ailments which have thus far survived from an age so remote."

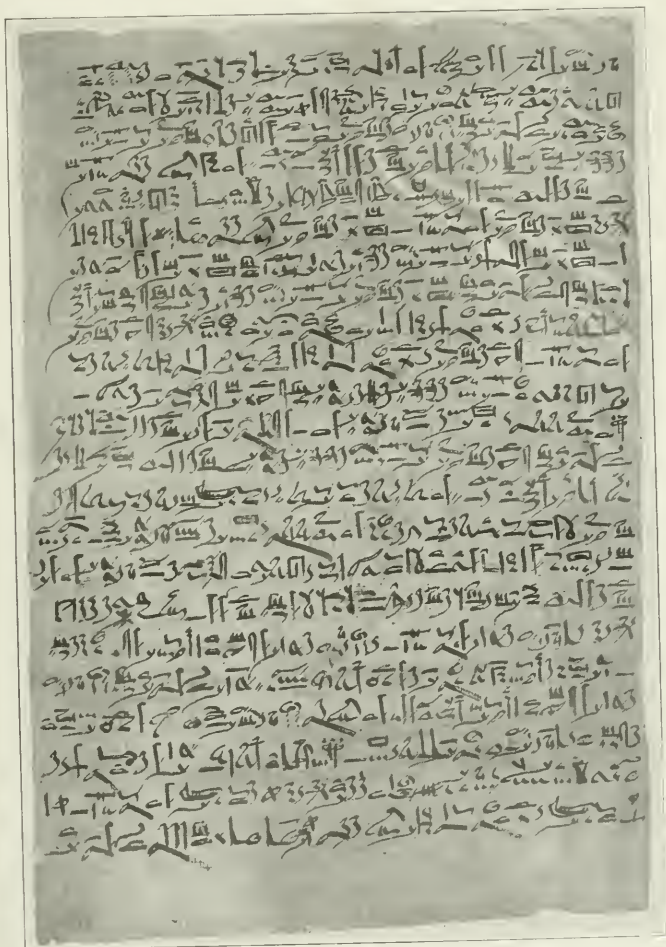
It describes forty-eight cases which are grouped in sections according to their anatomical classification, as follows:

I. Head: Calvaria (Cases I-X).

V. Collar Bone and Shoulders: Clavicle and Scapula (Cases XXXIV-XXXVIII).

VI. Thorax and Mammae (Cases XXXIX-XLVII).

VII. Spine (Case XLVIII, incomplete).



A PAGE OF THE EDWIN SMITH PAPYRUS

The writing is the rapid cursive Egyptian hand, called *hieratic*, in which the original hieroglyphic pictures are abbreviated and rounded off until they have lost their picture form. The manuscript dates probably from the latter part of the seventeenth century B. C. (By courtesy of The New York Historical Society.)

- II. Nose (Cases II-XVII).
- III. Mandible, Ear and Lips (Cases XVIII-XXVII).
- IV. Throat and Neck: Cervical Vertebrae (Cases XXVIII-XXXIII).

Each case is methodically described as follows:

(a) *Title*, always beginning: "Instructions for . . ." (name of ailment).

- (b) *Examination*, always beginning: "If you examine a man having . . ." (symptoms).
- (c) *Diagnosis*, always beginning: "You should say concerning him 'A sufferer with . . .'" (name of trouble follows).
- (d) *Verdict*, always one of three:
  1. "An ailment I will treat" (favorable).
  2. "An ailment I will contend with" (doubtful).
  3. "An ailment I will not treat" (unfavorable).
- (e) *Treatment*.
- (f) *Explanatory glosses* (seventy in all).

Although part of the Papyrus has been lost, nevertheless what remains exceeds in bulk all the other leading medical Papyri; Ebers, Hearst, and that at Berlin, and its contents are vastly more interesting because it contains what are evidently the fragments of a great book on medicine and surgery, with case-reports, having the diagnoses and prognoses included, whereas the greatest portions of the other Papyri are merely collections of recipes and contain but scanty information on the nature of the cases in which they are to be employed.

In the section on injuries of the head there are indications that the ancient Egyptians had some idea of surgical practices, for the surgeon is bidden to "probe the wound"; and in a case of "fracture of the skull under the skin" he is charged to open at the contused point and "to elevate the depression outward." If, as is probable, some form of trephining is here implied, it is, as Professor Breasted points out, the earliest known reference in literature in this operation. In the section on the vertebrae of the neck the physician notes that in dislocation of the cervical vertebrae the patient loses

control of his arms and legs and excretory organs and the "verdict," or prognosis, is hopeless. Such a dislocation is called a "*wenekb* of the vertebrae of the neck" and is distinguished from a "*sehem* in the vertebrae of the neck" which is a fracture of the vertebrae, causing deafness, loss of speech, and loss of control of the arms and legs. In the section devoted to the collar bone and shoulders the methods for reducing dislocations of the clavicle and scapula are described.

The Edwin Smith Papyrus contains a passage on the circulation very similar to one contained in the Papyrus Ebers: "There is in it (the heart) a canal leading to every member of the body. Concerning these, if the physician . . . place the fingers on the back of the head, on the hands, on the pulse, on the legs, he discovers the heart, for the heart leads to every member, and . . . it beats (literally 'speaks') in the canals of every member." A very early reference to a circulatory system.

The author points out the fact that these case records contain many glosses or explanations of terms used in them, and he conjectures that this indicates that the records constitute the remains of a very much older work on medicine and surgery, so ancient that in this edition of 1600 B. C. it was necessary for the scribe to annotate the text with explanations of obsolete terms.

Professor Breasted intimates that this most valuable contribution to medical literature is only a preliminary report. It is sincerely to be hoped that in the near future we may be favored with a translation of the entire document as these specimens of its contents serve only to indicate what a wonderful mine has been opened in a hitherto unknown region of medical history.



## BOOK REVIEWS

LIFE OF ELIE METCHNIKOFF, 1845-1916. By Olga Metchnikoff with a preface by Sir Ray Lankester, K. C. B., F. R. S., Boston and New York: Houghton Mifflin Company, 1921.

Metchnikoff's life contains more of pathos and of thwarted endeavor, and at the same time, more of success than that of almost any other great man of our time. In the height of its joys and the depths of its sorrows his life in a measure epitomizes the history of the Russian people. Descended on his father's side from an ancient Moldavian house, on his mother's from a Jewish statesman who had rendered great service to the Czar, he grew up in an atmosphere little calculated to foster the scientific spirit; nevertheless such spirit appeared in him at a very early age. Under great difficulties, partly domestic, partly caused by eye troubles; he acquired a knowledge of biology, and like his great countryman Kovalevsky with whom for a time he worked, he made important contributions to embryology, especially to the subject of the development of the lower forms of life. A study of germ layers and of metamorphosis and other cellular processes led him to an investigation of intracellular digestion. Observing this process, to which he gave the name "phagocytosis," in the lower forms of life, he gradually came to see its significance for pathological processes in higher animals. Through such studies which inevitably attracted him to a contemplation of human disease, he became identified with medicine, and now stands as one of the great benefactors of medical science, although like Pasteur he never studied medicine.

He married young; unfortunately his wife contracted tuberculosis, and although he made every conceivable sacrifice of money and position, he could not save her life. Her death threw him into a tempera-

mental melancholy and caused an attempt at suicide. Fortunately, he took an overdose of morphine, vomited and recovered. A return to scientific pursuit reestablished his contact with life. His second wife, whom he wedded in 1875, proved an ideal companion. She is the author of the biography, which she could never have written had she not been completely imbued with Metchnikoff's ideals and had she not familiarized herself with the technical side of his work. Deep study of her husband's thoughts and researches is apparent on every page of the book. Without pedantry, without minutiae, she traces Metchnikoff's zoological and pathological investigations from their beginning to their culmination, and does it with a self-restraint, a simplicity and a charm of diction that makes the book a truly great biography. Contemplating her fine character and Metchnikoff's tremendous mentality, what a pity it is that the latter was so much of a pessimist that "he looked upon procreation of other lives as a crime on the part of a conscious being."

Metchnikoff's initiation into infectious diseases was not unlike that of Pasteur. In the summer of 1880, the cereals in Russia were invaded by a harmful beetle, *Anisoplia austriaca*. Taking up the study of this scourge he found in dead bodies of the anisoplia a small fungus with which he succeeded in infecting healthy beetles. This became the basis of a satisfactory attack upon the scourge and proved the starting point of his researches in infectious diseases. He first turned to erysipelas and relapsing fever in an endeavor to discover the part played by phagocytosis. It was at this time that the Russian environment, long irksome, became for him so hopelessly limited intellectually that he determined to settle in Berlin. But the German scientists

received him coldly; in despair, he turned his steps toward Paris and found there the haven he sought. In later years, Koch and the other German scientists, who had at first opposed his theories, became his warm adherents; but Metchnikoff though greatly pleased could never entirely forget their early hostility.

The phagocytosis theory found its chief opponents among the German humoralists who contended that antitoxin immunity was evidence against the importance of the part played by cellular immunity. Metchnikoff, however, showed by innumerable ingenious experiments that defensive substances in the last analysis come from cells. Although, at present it cannot be said that the controversy regarding phagocytosis and humoral immunity is entirely ended, scientists are generally in accord in believing that serum bacteriolysis and phagocytosis are at bottom the same process.

In his later years Metchnikoff concerned himself with the problem of premature senility. He taught that a man should try so to live that the instinct for death would be natural. If our disharmonies with nature were banished, old age would come as a physiological process: "Our manner of life will have to be modified and directed according to rational and scientific data if we are to run through the normal cycle of life—orthobiosis." In its origin premature senility is, in Metchnikoff's opinion, due to poisons absorbed from the intestinal tract, which in a man has too great a length—a vestige of his early ancestry. His researches in this field led him to formulate the theory that toxins produced by bacteria in the intestinal canal are the cause of degenerative processes, and that a modification of the diet, especially the use of certain bacteria causing acidification of milk, can prevent the formation of these toxins. This particular phase of his work brought him a good deal of notoriety, likewise some unpleasantness through the efforts of certain persons to commercialize his name.

In 1908 Metchnikoff had a memorable

visit with Tolstoi at Iasnaia Paliana. Tolstoi could not see any value in the study of abstract questions. "What good can it do man to have a notion of the weight and dimensions of the planet Mars?" he said. Metchnikoff naturally defended abstract investigations. The two men differed also about music. Tolstoi liked Chopin and Mozart, and did not care for Beethoven as he states in his letters; Metchnikoff on the other hand was passionately fond of Mozart and Beethoven. Both agreed as to Wagner and modern music, thinking it unintelligible and lacking in harmony, in which opinion they showed that the conservatism of age was creeping upon them.

Metchnikoff was a deep student of Goethe in whose "Faust" he found much to support his own views as to the disharmonies of human nature.

The Great War was a serious trial to Metchnikoff. He had many friends in Germany with whom he did not like to break. Moreover, he lost his assistants who were one by one drawn into the service. He continued, however, to work in the almost deserted Pasteur Institute until the heart affection, of which he had intimation for some years, became too pronounced. His disease was evidently a progressive myocarditis with attacks of angina pectoris and probably of pulmonary edema. During his attacks he had a consciousness of approaching death but never any fear. "As I prepare to die I have not the shadow of a hope of life beyond, and I calmly look forward to complete annihilation," he wrote at the close of a particularly severe paroxysm. When three years later he lay dying in the Institute Dr. Salimbeni entered the room. "Salimbeni, you are a friend; tell me, is it the end?" And as he protested, he added, "You remember your promise? You will do my post-mortem? and look into the intestines carefully for I think there is something there now." How these words, so consciously spoken, must have harrowed the soul of his wife who stood at his bedside.



Science was Metchnikoff's religion. "If an ideal is possible, capable of uniting men in a sort of religion of the future, it can only be based on scientific principles. And if it is true, as is so often affirmed, that it is impossible to live without faith, that faith must be faith in the power of science."

In summing up the work of Metchnikoff, we may say that he was an originator, not a follower, and that he rightly belongs in that great pantheon of Modern Science in which the world has placed men like Pasteur, Lister, Ehrlich and Koch.

DAVID RIESMAN.

A HISTORY OF THE NATIONAL TUBERCULOSIS ASSOCIATION, *The Anti-Tuberculosis Movement in the United States*. By S. Adolphus Knopf. New York: National Tuberculosis Association. 1922.

Although an institution which only came into existence in 1904 could hardly lay claim to historic celebrity, the National Tuberculosis Association has made so much history during its brief life that it is well to have an authentic and official record of its early years before they become obscured by the passage of time.

This book begins with a brief sketch of the early efforts to combat tuberculosis in the United States and then gives the details at length of the organization of the National Tuberculosis Association. A report of the events at the seventeen first annual meetings follows, and then short biographical sketches accompanied by portraits and bibliographies of the officers of the Association from the earliest times to the present day. The only omission is the biography of the author of this "History," Dr. S. Adolphus Knopf, who although one of the most distinguished workers in the Association has modestly refrained from any attempt at autobiography and merely publishes a bibliography of his writings, which is, however, alone of sufficient merit to assure him distinction in his field of work. Some criticisms may be aroused by the inclusion of biographies of Presidents Cleveland, Roosevelt, and Harding, who all

served the Association as Honorary Vice-Presidents. The sketches, however, only deal with such of their activities as bore on the work of the Association and are, therefore, most interesting. The book is invaluable as a reference handbook for those interested in anti-tuberculosis work, whether physicians, social workers, or hygienists, and as such lays us under a debt of gratitude to its author, Dr. Knopf.

FRANCIS R. PACKARD.

PHYSIC AND FICTION. By S. Squire Sprigge. London and New York: Hodder & Stoughton and Oxford University Press. 1921.

This volume contains twelve most interesting chapters on various borderland topics of vital interest to the lay as well as the medical world. The first on "Medical Priestcraft" deals with an aspect of medical practice which presents itself daily to every professional man: "the distrust of the public and the unreasoning faith of the public, for these are the things which lead to disappointment when impossible events do not take place, and the want of appreciation when great deeds have been accomplished," both of which have been temporarily increased by the great advance in general knowledge, but both of which will cease when the aims and principles of medicine are better appreciated as they will be when general education becomes yet more advanced. The Author elaborates this thesis in such a way as to be helpful in broadening the views of the profession and arousing its interest in some of the new public health movements which will increase the usefulness of its members. In "The Old-Fashioned Doctor" a careful study is presented of the way in which startling innovations, such as the discovery of the circulation of the blood, or antiseptics, strike the physician who has been, heretofore, successful and skilled in his art. Can he be expected to yield at once to the evidence of such a complete reversal of his views? Is he justified in feeling somewhat sceptical of such complete overthrows of

all he has heretofore held as gospel? The tactful skill with which Sprigge presents the attitude assumed by the honest conservative, confronted by such a crisis, is quite remarkable. Chapters III and IV are devoted to the physician in fiction, especially as he figures in the pages of Dickens and Thackeray. They are most enjoyable, recalling old familiar figures and revealing the attitude of the novelists towards the various aspects of the profession as revealed in their creations. Sprigge dwells with justice on the pathological, mental and physical characteristics presented by so many of the characters in Dickens' novels. What the casual reader might consider merely eccentricities are in reality manifestations of mental perversion, and the grotesque physique or actions of many of the characters are accurate pictures of pathological conditions.

There is an interesting account of Dr. John Elliotson, the famous London physician, whom Thackeray immortalized in the dedication to "Pendennis," with the story of his professional ruin through his credulity and belief in the "magnetic" manifestation of some impostors. In "They All Lived Happy Ever After" there is an excellent discussion of the problems of eugenics, in which the fallacies, based on the study of the Jukes genealogy, are cleverly recounted. The essay on "Prizes and Performances" can be read with profit by all who are interested in medical education, and that on "Some Public Developments of Medicine" is an interesting review of the great progress made in legislative sanitation in recent years, with an especial appeal for study and care in taking up the problems of reconstruction which have arisen from the War. "The Pathologist in the Street" is an entertaining discussion of the value of the snapshot diagnoses which every doctor makes with some frequency during his daily encounters with his fellow-beings. Artistic representations of medical topics are discussed in a scholarly chapter which throws a new sidelight on a much discussed

topic. In some "Comfortable Words About Poisoning" the reader is shown by the recital of some typical cases, how rarely those guilty of such crimes escape detection, and how little secret knowledge of poisonous substances is possessed by those who might make an evil use of it. The last essay "Primordial and Other Stuff" is a thoughtful study of the medical attitude towards spiritualism and the supernatural.

Few books have appeared in recent years which can be more heartily commended to the perusal of medical men in every walk of the profession than this. Dealing with subjects, many of which are present in our minds almost daily, this book helps to clear our ideas and gives a fresh turn to our somewhat jaded reflections on them.

FRANCIS R. PACKARD.

PASTEUR AND HIS WORK. By L. Descour (Médecin Inspecteur de l'Armée). Translated from the French by A. F. and B. H. Wedd, M. D. New York: Frederick A. Stokes Company, 1922.

If any proof, beyond the vast results of his researches, were to be sought of the greatness of Pasteur, it might be found in the numerous literary tributes to him which have appeared since his death. Of these by far the most important is his "Life," by his son-in-law, Valléry-Radot, one of the real classics of biographical literature. In it all the details of his domestic life and scientific career are given with a delicacy, and charm which has rarely been equalled. His former assistant, Emile Duclaux, wrote a fascinating record of his scientific work, "Pasteur: Histoire d'un Esprit." Both of these works have been presented to the English reader in most excellent translations, and have enjoyed widespread popularity.

Descour has written a new biography of Pasteur and A. F. and B. H. Wedd have made a most acceptable English Translation of it. There is a very short preface, hardly more than a translation of some remarks in praise of Descour's book, made by Roux when he presented it to the French Academy of Medicine, and no further explanation is

offered for the existence of the volume. It is impossible not to make comparisons between it and the "Life of Pasteur" by Vallery-Radot and yet it is not quite fair to do so. The previous work has so fully covered every phase of Pasteur's activities that nothing new can be brought forward and any subsequent work must be more or less based on its contents. Descour's book may be regarded as a condensation of the larger work of Vallery-Radot and is authentic because the book on which it is based is so. It is interesting because it is so well written, and it is to be hoped it will be widely read and stimulate further interest in its subject. Osler said in his introduction to Mrs. Devonshire's translation of Vallery-Radot's "Life." "This is a biography for young men of science, and for others who wish to learn what science has done, and may do, for humanity." If Vallery-Radot's "Life of Pasteur" is not available we could certainly use the same statement as regards the present work. There is one minor query which arises in the mind of the reviewer. Why should the name of Duclaux be spelt Ducleaux throughout the book in the many places in which it recurs? It certainly is not a typographical error.

FRANCIS R. PACKARD.

MODERN ITALIAN SURGERY AND OLD UNIVERSITIES OF ITALY. By Paolo De Vecchi, M. D. Paul B. Hoeber, New York, 1921.

If anyone were asked to what department of medicine Italy had been the greatest contributor, anatomy would be the ready answer, for there is hardly an organ or tissue in the human body which has not connected with it the name of an Italian anatomist. The development of the study of anatomy might be said to be entirely due to the Italians; but it is not in this field alone that Italy has been a notable contributor for her schools of medicine were the first and for four or five centuries the foremost of the world. These ideas of Italian medicine are generally accepted, but it is equally true that most medical men

of our day would say that modern Italy has been a follower, rather than a leader, despite the familiar work of such men as Bassini, Bastianelli, Codivilla and others. Many American surgeons and physicians were rather surprised to see the excellent work and organization of the medical department of the Italian army during the late war and all who visited their hospitals at the front or at the bases returned full of praise of what they had seen.

Dr. De Vecchi in this volume on "Modern Italian Surgery" shows very clearly that the modern Italian surgeon, although he may not have made as much noise about his work as the surgeons of some other country, has nevertheless not only kept abreast of modern methods but in many instances has been a leader.

This volume does not purport to be a scientific contribution to surgical literature, but a description of modern Italian surgery. The object of the author is to familiarize the American surgeon with the Italian school of surgery of today.

The first chapter describes briefly Italy's struggle for liberty and unification, which had its culmination in the acquisition of Trent and Trieste. The next four chapters deal with the work done by the medical men in Italy during and just after the great war. It would appear that in the reconstruction work the Italian government and surgeons had set an example which other nations might do well to study. The chapter dealing with the assistance offered by the government to crippled soldiers is very interesting and could be read with profit by those engaged in or interested in reconstruction work in this country.

The cinematic amputation, first suggested by Vanghetti, not a surgeon but a medical man, is described in detail and apparently the method is now being quite extensively employed by the Italian surgeons with good results. This method of rendering a stump useful after amputation has hardly been given the trial in this country, which it would seem to deserve.

The portion of the work dealing with orthopedic surgery and the care of crippled children, in which the Italian surgeons have excelled, is most interesting.

The latter chapters describing the universities of Italy will be found of value to those engaged in the teaching of medicine. The course of medical study extends over six years and we are informed:

That the standard of medical education is the same all over the country, that no medical schools are recognized or even permitted in Italy except those approved by the Government which are under the control of the universities, and that nobody is allowed to practice medicine or surgery unless he has received the proper degree of "Laurea."

Separate chapters are given to the description of the Universities of Rome, Bologna, Modena and Parma, Padua, Pavia, Turin, Genoa, Pisa, Siena, Naples, Sicily, Sardinia, and the Institutes of Milan and Florence.

The last chapter on surgical literature enumerates the most important contributions of Italian surgeons.

Certainly the American profession is indebted to Doctor De Vecchi for this interesting book which places before it every phase of modern Italian surgery. No American surgeon or physician should think of visiting Italy without first reading this book and without taking it with him as a guide.

JOHN H. GIBBON.



# ANNALS OF MEDICAL HISTORY

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## A NOTE ON THE "LIBER DE MEDICINIS EXPERTIS" ATTRIBUTED TO GALEN

By ERNEST WICKERSHEIMER, M.D.

STRASBURG, FRANCE



AMONG the writings falsely attributed to Galen there is one which in Latin bears the title "Liber de medicinis expertis" or "Liber de medicinis experimentatis," or yet again "Experimentatio medicinalis." According to the first words of the manuscript which I have studied it had been translated from Greek into Arabian by Johannitius, and from the Arabian into Latin by Farrachius: "Transtulit Johannitius de greco in arabicum et magister Farrachius de arabico in latinum." It is scarcely necessary to recall here that Johannitius is the latinized name of the Arabian physician, Honein ben Ishaq, of whom Lucien Leclerc has said "that he is one of the highest intellects and most beautiful characters that one meets with in history,"<sup>1</sup> and that Farrachius (also called Franchinus)<sup>2</sup> is the Latin form of the name of the Jew, Faradj ben Salim, who lived in the second half of

the thirteenth century, and who was charged by his protector Charles of Anjou, King of Naples, to translate a certain number of medical works from the Arabian into Latin.

We do not know the Greek text of the "Liber de medicinis expertis," but the Arabian version has been preserved for us by the two following manuscripts, of which the second offers the peculiarity that it is written in Hebrew characters:

1. Escorial MS. Arab.-Hisp. 846. Dated in the year 728 of the Hegira, or 1327 of our era.<sup>3</sup>
2. Royal Library of Munich. MS. Hebr. 243, fol. 185-217, fifteenth century.<sup>4</sup>

<sup>3</sup> Casiri, Mich. *Bibliotheca Arabico-Hispana Escorialensis* . . . I (1709), p. 285, whatever has been said of it by H. Diels (*Abhandlungen der kgl. preussischen Akademie der Wissenschaften*, 1905, *Philosophisch-historische Classe*, Abh. 111, p. 142), the manuscript Arab.-Hisp. 851 of the Escorial does not appear to contain the treatise and the part published in the catalogue of Hartwig Derenbourg, "les manuscrits Arabes de l'Escorial" (*Publications de l'École des langues orientales vivantes*, 2nd series, x) does not contain the works indicated.

<sup>4</sup> Steinschneider, M. (*Archiv für pathologische Anatomie* . . . herausg. von R. Virchow (1867), xxxix, 321. Cf. *Catalogus codicum manuscriptorum Bibliothecæ regiae Monacensis*, t. 1, p. 1, ed. 2<sup>a</sup> (1895), p. 115.

<sup>1</sup> Leclerc, Lucien. *Histoire de la médecine Arabe*. Paris: Ernest Leroux. 1876. 2 vol. in 8vo., i, 139.

<sup>2</sup> Bibliothèque nationale de Paris, MS. Latin 6893, fol. 285.

As to the Latin version it is widely diffused. Diels cites sixteen manuscripts of it which he found in the libraries of Avignon, Breslau, Dresden, Erfurt, Leipzig, Munich, Oxford, Paris, Pavia, and the Vatican,<sup>5</sup> and this list could without doubt be yet further enlarged. It is thus that I have had knowledge of the three manuscripts which follow which had escaped H. Diels.<sup>5</sup>

1. *Bibliothèque de l'Université de Paris*. MS. 132, fol. 324, verso 335, thirteenth century.

2. *Bibliothèque de l'Arsenal de Paris*. MS. 704, fol. 109, verso, fourteenth century. Fragment.

3. *Bibliothèque universitaire et régionale de Strasbourg*. MS. 20, fol. 145-146 and 125-132, fifteenth century.

This version was frequently printed in the sixteenth and seventeenth centuries in the collective editions of the works of Galen, for example in that published by the Junta, printers of Venice, but the text in these editions is very incorrect, and the proper names of persons, very numerous as we will see, are altered. An edition with fewer faults was published in 1481 at Milan, accompanying the works of Rhazes, by the care of Leonard Pachel and of Ulric Scinzen- celler (Hain, No. 13891). The *Bibliothèque nationale* contains two examples of it which bear the marks respectively Réserve T<sup>22</sup> 1 and Réserve T<sup>22</sup> 1 a, and at Washington the Library of the Surgeon-General's Office possesses another.<sup>6</sup>

The "Liber de medicinis expertis" is a collection of matter which of itself does not present much of interest, because it scarcely differs from that which one finds habitually in works on therapeutics in the Middle Ages, but which on the other hand is very remarkable for another reason, namely, for the great number of physicians who are found quoted in it, and of whom the names, generally bizarre, have justly excited the interest of bibliographers.

<sup>5</sup> Diels, II., *loc. cit.*

<sup>6</sup> *Index Catalogue*, 2nd ser., xiv, 524.

Are these names chiefly of Arabic origin, as thought Albert von Haller<sup>7</sup> and Kühn,<sup>8</sup> or are they chiefly Greek as Steinschneider<sup>9</sup> believed? I lean rather to the opinion of Steinschneider and willingly suppose that many among them are the result of the deformation of proper names, so numerous in the works of Galen and particularly in the *περι συνθέσεως φαρμάκων ἰῶν καὶ*

To solve this problem it would be necessary for a medical historian who was also an Arabist, to take the pains to study with care the Arabian manuscripts in the Escorial and at Munich.

While waiting for some savant to undertake this work I will limit myself to reproducing here the names cited in the Latin version which appear in MS. 132 in the *Bibliothèque* of the University of Paris, which dating from the thirteenth century, ranks among the most ancient of which we have any knowledge. This publication seems useful to me because all the lists heretofore published, of which the oldest is that of Fabricius,<sup>10</sup> have been from the faulty editions cited above and are in consequence deprived of value for whoever wishes to attempt the identification of the proper names.

1. Amaron. "Medicamen Amaron, regis."

2. Andexeos. "Medicine Andexeos, Greci. Iste autem fuit in tempore suo philosophus et habebat multas medicinas compositas."

3. Annaloz de Macedonia.

4. Ardion ". . . ab Ardion, phisico meliori . . ."

5. Arostrocamez (or Astocanus). Cf. No. 16 (Costroz).

6. Atricon. Perhaps a faulty transcrip-

<sup>7</sup> von Haller, A. *Bibliotheca medicinae practicae*. . . (1776), i, 266.

<sup>8</sup> Galen, *Opera omnia*, ed. Kühn, i, clxix.

<sup>9</sup> Steinschneider, M., *loc. cit.*, p. 320.

<sup>10</sup> Fabricius, J. A. *Bibliotheca Graeca*, 1746, xiii, 17 et sq., Cf. M. Steinschneider, *loc. cit.*, p. 320-321, and *Bolletino Italiano degli studii orientali*, n. s., 1877-1882, p. 364-368. In the latter work notice the details of the Arabian manuscript at Munich.

tion of "Criton" a name frequent in Galen's writings.

7. Assister (?) "Electuarium Assistri."

8. Astoram. ". . . ab Astoram, experimentatore qui erat de civitate Coxhar."

9. Aszigmez. "Fuit de sapientioribus qui fuerunt in tempore suo."

10. Aurion Romanus.

11. Azaricon. "Iste vir, quamvis non habuit nomen inter medicos, accepi tamen ab eo quatuor medicinas nimium expertas." Perhaps this refers to the empiric Æschrion, a very experienced old man, according to Galen, his fellow citizen, and pupil.<sup>11</sup>

12. Birtanz. "Birtanz Sicilie." Probably Demetrius Bithynus, a troche bearing his name and made in Sicily is cited by Galen in *Περὶ συνθέσεως φαρμάκων*.<sup>12</sup>

13. Cassioz. "Erat ex Armenia anteriori."

14. Catelinus. "Medicine Catelini, qui fuit medicus Lichos regis."

15. Chaazon (or Alchaazon). "Medicine sumpte a Chaazon, experimentatore de civitate Athenarum . . ., nobilissimo medico."

16. Costroz. "Fuit socius Astocani."

17. Gamz.

18. Gereoz. "Medicine Gereoz, Greci."

19. Hargeniz. Cf. No. 23 (Socyon).

20. Hatoz. Cf. No. 23 (Socyon).

21. Istrobioz.

22. Quillataz.

23. Socyon. "Iste fuit maximus medicorum Grecorum, qui habebat experimenta plurima in fine nobilitatis que nos acquisivimus a discipulis ejus, scilicet Teranoz, Hargeniz, Hatoz." Cf. No. 30 (Zorioz).

24. Sorboz. Cf. No. 26 (Thamor).

25. Teranoz. Cf. No. 23 (Socyon).

26. Thamor. "Thamor de regione Ethica, qui fuit unus de bonis experimentatoribus, habebat multa bona experimenta experta que sic custodiebat, quod, eo vivente, nemo habere potuit, que postquam mortuus fuit, pervenerunt in manu Sorboz qui per ea faciebat mirabilia et exaltavit nomen suum inter medicos."

<sup>11</sup> Galen, *Opera omnia*, ed. Kühn, xii, 356.

<sup>12</sup> Galen, *Opera omnia*, ed. Kühn, xiii, 836.

27. Tizitanus Romanus.

28. Zacaron. "Electuarium Zacaron, de Babilonia."

29. Zenon. "Medicamen Zenonis de Athenis. Iste fuit de magnis medicis; ego autem non vidi ipsum, quia non fui contemporaneus ejus, sed magister meus vidit ipsum." The name of Zenon is frequently found in Galen's writings, referring to various personages, philosophers or physicians.<sup>13</sup> It may be that it refers to the physician Zenon of Cyprus, who taught medicine at Alexandria in the last half of the fourth century of our era, and by consequence lived at an epoche subsequent to that of Galen.<sup>14</sup> Cf. No. 30 (Zorioz).

30. Zorioz. "Hoc medicamen dedit Zorioz de scriptis Zenon quod composuerat per versus." Fabricius, who cites him under the name Zotion, thinks that he is the same personage as Socyon, whom he calls Sotion.<sup>15</sup> Cf. No. 23 (Socyon).

31. Zurion. Although this name is cited apropos of one of the recipes for medicine attributed to Zenon, it does not appear to have been erroneously written instead of the name Zenon, since I have found the name Zurion in all the manuscripts that I have examined.

This list may be completed by the mention of an anonymous person "advena Egyptiacus." This Egyptian stranger, whom Steinschneider<sup>16</sup> wrongly believed called himself "Adreus" or "Adreanus," got one of his recipes from one of the physicians of the altars, to whom we shall shortly return.

It is probably also an error that Steinschneider has transformed into a proper name the adjective "melius," that is to say

<sup>13</sup> Galen, *Opera omnia*, ed. Kühn, xx, 676.

<sup>14</sup> Neuburger, M., und Pagel, J. *Handbuch der Geschichte der Medizin*, i, 491. It is not out of place here to point out by way of example of the deformation of proper names in the Middle Ages, that Albert the Great transformed into "Zeno," the name of the celebrated fabulist Æsop. Cf. Hermann Stadler (*Archiv für die Geschichte der Naturwissenschaften und der Technik*, 1913, vi, 387).

<sup>15</sup> Fabricius, J. A., *loc. cit.*, p. 427.

<sup>16</sup> Steinschneider, M. *Bollettino Italiano degli studi orientali*, n. s., 1877-1882, p. 365.

better, which is applied to one of the medicaments. The text which has served as the basis of this work, which is that of MS. 132 of the Bibliothèque de l'Université de Paris, reads "Medicamen melior quod valet ad dolores fortes," but the solecism "melior" does not obscure the sense of the passage.

Whatsoever be the origin of the proper names in the preceding list, it is absolutely certain that the "Liber de medicinis expertis" is drawn from the most various sources.

According to Casiri,<sup>17</sup> the Arabian text in the Escorial alludes to physicians decidedly subsequent to Galen—"Ebn Massuia, Abu Maschar, Avicenna," and although the Latin text, the only one which is considered in this paper, does not contain these names, it offers testimony of the same kind. Let it suffice to cite the word *bezoard*, "medicinas bezar, id est a morte liberantes," almost at the beginning of the treatise, which is derived from the Persian *padzebr*, from *pad* (to preserve) and *zebr* (poison),<sup>18</sup> and only came into the West long after the epoch at which the Sage of Pergamus lived.

On the other hand, the anecdote with which the "Liber de medicinis expertis" opens, according to which a fire had destroyed the books of the author and those which belonged to other physicians, as well as the Library of the King, is clearly borrowed from Galen. In the year 191 a fierce fire broke out at Rome, destroying the Temple of Peace and the Library of the Palace.<sup>19</sup> Galen says in Chapter 1 of *Περὶ συνθέσεως ψαρμάχων*, that this fire did not spare his own manuscripts, at that time deposited in a shop on the Via Sacra.<sup>20</sup> The author of the "Liber de medicinis expertis" reports the fact in his own way, adding to it a stroke apt to satisfy the

<sup>17</sup> Casiri, Mich., *loc. cit.*

<sup>18</sup> Littré, E. Dictionnaire de la langue française i, 336.—Fabricius (*loc. cit.*, p. 102) regards the word "Bezar" as the name of a physician.

<sup>19</sup> Daremberg, Ch., et Saglio, Edm. Dictionnaire des antiquités grecques et romaines, iv, 363.

<sup>20</sup> Galen, Opera omnia, ed. Kühn, xiii, 362-363; Cf. xix, 19.

taste for the marvelous inherent in human nature, and at the same time he displays an appetite for lucre with a naïveté which is somewhat unusual:

Dixit Galenus: ignis qui descendit super altare combussit libros Regis et cum hiis combussit multos libros plurum medicorum. Michi autem combuxit plurimos libros quorum quidam erant completi et quidam quos inceperam componere et non doleo tantum de aliis libris quantum doleo de quibusdam experimentis medicinis que erant ibi, que acquisiveram a quibusdam bonis viris experimentatoribus et forte pro uno bono experimento acquisito dabam multa experimenta bona et forte dabam pecuniam, et scio virum qui curavit lapidem in vesica curacione perfecta et hoc sepe in multis hominibus et lucrabatur infinitam pecuniam per hoc solummodo et per hanc medicinam acquisivit sibi nomen optimi phisici et alium scio qui curavit ficus in ano completo cui dabantur multe pecunie et aliquem docere nolebat, et alius vir curabat complete morsos a rabido cane vel morsus rabidi canis et medici vocant medicinas bezar, id est a morte liberantes et forte medicus poterit congregare ex hiis medicinis multa et bonus medicus ex Grecis cum sciverit aliquem hominem scientem aliquod bonum experimentum, tribuit illi magnam pecuniam ut ab eo doceretur.

Neither Galen in his authentic works nor Dion Cassius<sup>21</sup> states that the conflagration in the Temple of Peace was started by fire from Heaven falling on the altar; nevertheless Herodian<sup>22</sup> states that thunder was one of the possible causes of the fire.

One can find in the "Liber de medicinis expertis" yet another borrowing from Galen. Towards the end of the text as one finds it in the different editions, the author alludes to a "Liber interiorum," which he had composed "Licet diximus in libro interiorum." But "De interioribus" is the title given in the Middle Ages to the Latin translations of *Περὶ τῶν πεποθόγων τόπων*, of Galen, generally known in our time as "De locis affectis."

It is more difficult to determine the origin and exact signification of the pas-

<sup>21</sup> Cassius, Dio. Historia Romana, lxvi, 72, 1.

<sup>22</sup> Herodianus. Historiæ, i, 14, 2.



sages in the treatise where it is a question of the "physicians of the altars," *medici altarium*. Who were these physicians whom the author praises for curing by means of the sacrificial meats, because errors of diet are easy to correct while errors in the administration of a medicine could easily lead to death? And had he met with these physicians, nobler than the others "quoniam corpora que curantur per exhibitionem diete reducuntur ad temperentiam melius quam que curantur per medicinam"?<sup>23</sup> These "physicians of the altars," it would seem, practiced very far from the temples of Asklepios, where the sacrificial meats, according to my knowledge, had no part in the usual therapy.

I have observed above how incorrect are the editions of the treatise on medicine with which we are occupied. They have yet another fault; they are very incomplete.

In effect, having examined all the manuscripts of the "Liber de medicinis expertis" which are conserved in the public libraries in France,<sup>24</sup> I can testify that the text presented in these manuscripts is longer by one-third than that in the published editions. The last third of the treatise, as yet not published consists of three chapters, as follows:

<sup>23</sup> This idea of the importance of the diet in therapeutics is very galenical and therefore not out of place in a work attributed to Galen.

<sup>24</sup> Four in number: Avignon 1019, fol. 161 vo.—172, thirteenth century; Paris, Université 132, fol. 324 vo., 335, thirteenth century; Paris, Bibliothèque nationale lat. 6893, fol. 285–293 vo., (fourteenth century); Strasbourg, Bibliothèque universitaire et régionale 20, fol. 145–146, 125–132, fifteenth century. There is no reason to mention here "MS. 704" of the Bibliothèque de l'Arsenal de Paris, which contains but a short fragment of the beginning of the treatise.

1. "Capitulum de preparatione medicinarum ubi sine horribilitate possint sumi secundum Rasy."

2. "Capitulum de medicinis que ornant faciem."

3. "Capitulum de oleis."

I deem it useless to make here an analysis of these three chapters, of which the titles are sufficient to characterize the contents. I would remark, however, that the proper names of authors are as rare in them as they are frequent in the published part of the treatise. The "Capitulum de medicinis que ornant faciem" contains but two citations from Dioscorides, and the "Capitulum de preparatione medicinarum ubi sine horribilitate possint sumi," alleges as sole authority Rhazes.

It may be stated here that doubtless because they took note of the name of Rhazes, whom they knew lived long after Galen, that the editors of the "Liber de medicinis expertis" omitted the chapter in which his name occurs, as well as the chapter which follows. Too greatly preoccupied with historic verity they did not notice that this chapter is shadowed forth by that which precedes it,<sup>25</sup> and that it follows as a natural sequence.

By an analogous scruple certain copyists, such as those of manuscripts 1019 at Avignon, and 704 at the Arsenal, attribute the work entirely to Rhazes. In the same way, in the eighteenth century, Fabricius<sup>26</sup> was tempted to consider either an anonymous Arab or Gariopontus, the enigmatic Salernitanian, as the author of the "Liber de medicinis expertis."<sup>27</sup>

<sup>25</sup> "Medicus . . . debet considerare ut cibus et medicina que debent propinari, sint propria natura accipientis et sint boni saporis."

<sup>26</sup> Fabricius, J. A., *loc. cit.*, p. 82.

<sup>27</sup> Fabricius, J. A., *loc. cit.*, pp. 167 and 302.

## MEDICINE AND THE HUMANITIES\*

By CHARLES L. DANA, M.D.

NEW YORK, N. Y.

THE incidents of the career of Dr. S. Weir Mitchell, his character and life-work, have been fully and admirably dealt with both by my predecessor and in the "Memorial Volume" published shortly after Dr. Mitchell's death. So that it seems to me I could better devote my time to a study of some of the lessons which the life, influence and character of Dr. Mitchell teach us.

I had known Dr. Mitchell from the early part of my professional career, but not intimately; and in my feelings for him there was at first a touch of awe (which gradually became one of pride) for the things which he as a doctor had accomplished. Still later this feeling was increased to one of real warmth and friendship through an incident, which he probably thought befel as a matter of course, but which gave me a new insight into the depth and range of his sympathies. I had suffered a bereavement which left me rather stunned. A few days later I received a letter of most kindly sympathy, and a little book of poems called "The Comfort of the Hills." I had grown up in the comfort of the hills and his letter and gift made me look upon Dr. Mitchell in a new light and with feelings not only of gratitude but of affection. He did not know me then well enough to realize how much good his message did me.

This attitude of warm and friendly admiration was widespread and even international. The fact was once brought to me with dramatic emphasis. Nine years ago at a meeting of the International Medical Congress in London, we had a large dinner, attended by the neurologists from all over Europe, and I was allowed the honor of speaking for America. I dwelt on the fact

that in the early days of American neurology we, of the younger group, had some supermen to help us and I mentioned the prominent men of the '70s, '80s and '90s. When I came to the name of Weir Mitchell, there was a loud and spontaneous burst of applause. It rather startled me, as well as pleased me, and it showed, as I thought at the time, that Dr. Mitchell, throughout the world, was in a class by himself.

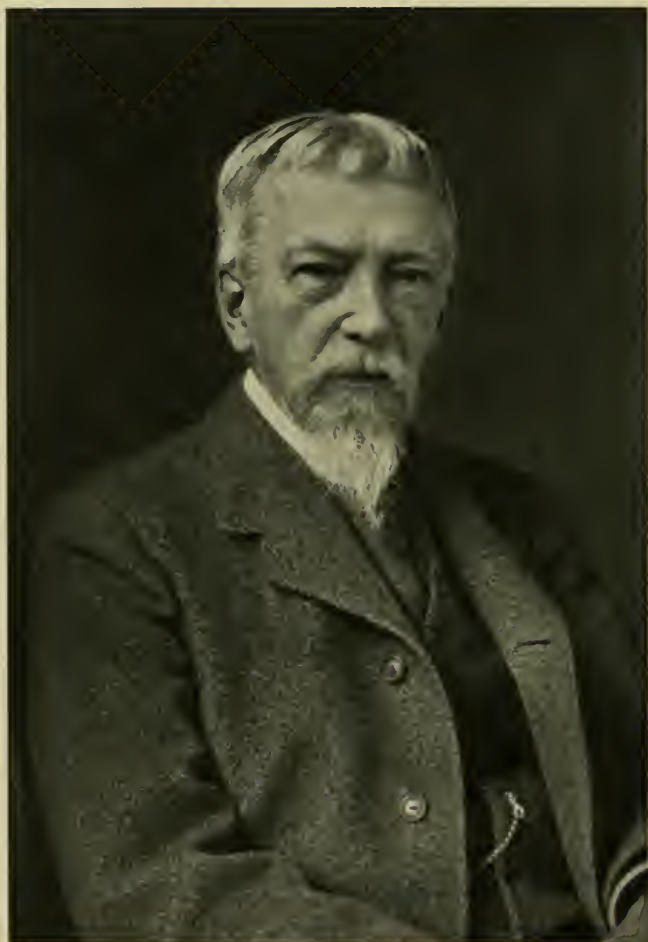
I presume and hope that Dr. Mitchell had some of that particular quality, I will not call it vanity but involving enjoyment of formal recognition, such as most of us possess. If he did, he must have derived much pleasure from his achievements. His contributions to scientific and practical medicine were many and were acknowledged to be far-reaching and enormously helpful. He contributed to laboratory work, as well as to clinical medicine and therapeutics. He changed and added to methods of medical practice. But in particular he showed the value of the personal equation, in applying our art in practice. Without hunting for buried and sodden complexes, he found and routed them out by his compelling skill. He accomplished psychoanalysis withouts tiring up the muddy depths of a Cimmerian past; he was the father of the best modern phases of psychotherapy and in particular he showed how much the non-technical side of the physician and his cultural values have power to accomplish.

You recall Matthew Arnold's often quoted statement to the effect that two-thirds of human life have to do with problems of conduct. I would say that it is even more true in medical practice that two-thirds of efficiency and success depend on conduct and character, and hardly one-third on technique.

Weir Mitchell's career illustrates this; and it has a value to students of medical education as well as to those of

\* The Weir Mitchell Oration delivered at the College of Physicians, Philadelphia, November 23, 1922.

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S. Weir Murchell

the profession who have high ambition for their art.

#### THE HUMANITIES AND TECHNIQUE

The whole trend of modern medical education now is to enlarge and emphasize the technique and to ignore the human. I have almost yearly had to assure my medical classes, that they were as yet persons without souls, because they would insist on laughing at the awkward movements or unintelligent expressions of my neurological cripples displayed before them. I have assured them that if they would be quiet or even shed tears at the time of these incidents, they would add some cubits to their moral statue and beget qualities that would make them better physicians. They would then behave better. In fact, the medical student is open-minded to cultural things and would be glad, I am sure, if he were taught a little less technique and more of the humanities.

The word "culture" has become a thing of which the younger generation is a little shy perhaps because it has been spelt with a "K." But as I understand and use it, the term means that a person with culture has enough knowledge of the present-day world and of what has been done in the arts and learning of the past to have a background. One cannot always or easily tell when there is a background of character but we all know those people without it. They are of a narrow intelligence, commonplace in thought, without humor, poor in their judgments, and prone to hold foolish and fanatical beliefs. These are the supporters of our medical cults, and back of their activities there are usually misapplied emotions.

Weir Mitchell without ever losing his laboratory habits or scientific methods of thought, could not only acquire, but also contribute cultural interests to all those with whom he came in contact.

Stimulated and instructed by his career, I have felt that I would like to urge the medical schools to organize non-technical

courses at the expense of learning less of the specialties, at least in the undergraduate school. I am aware that to an extent colleges are driven to this diffuse technical teaching by the requirements of State boards. This however is not a phase of my subject on which I shall dwell at present, for I am interested now in trying to demonstrate that something may be put into medical education (besides the technical studies) which will promote efficiency, usefulness and happiness throughout the whole course of the doctor's career. One of the things which a doctor should start with and pursue all his life, is some brand of this thing I call "culture."

A person can possess this without knowing the humanities, but a knowledge of these, as I use and understand the word, will also surely give something of this pragmatic culture for which I am pleading.

The terms "Humanism" and "The Humanities" began technically with Petrarch and blossomed out very dominantly in the sixteenth century. A study of the humanities at that time meant a study of all the established writings of the great men of the past, and excluded only theology. Later the term grew to have a wider meaning. Petrarch himself had the cultural quality of love of the classics, not of the books alone, but of the men. Writers like Virgil and Horace were to him real living characters and he himself loved not only letters and art, but human beings. I would emphasize under the term "culture" the study, knowledge and sympathetic appreciation of the best things thought and said and done in the history of mankind, the well-written stories of the achievements and mistakes of the great periods in human progress. In fact the word, as Hazlitt used it, meant all interests which are non-vocational and at the same time involve acquaintance with things of established beauty or worth.

If a person has something of this sort of culture, he will be very likely to possess mental balance and to show sanity in his

ideas and beliefs. It is because of a lack of this background of non-vocational education in America that we are preyed upon by a continual succession of wasteful emotions, shown by the fads, follies and fears of the day. With all due respect to the dynamic psychologists, I would claim that a real, serious, simple, cultural training of our adolescents, would clear the subconsciousness of irritating complexes and the activities of desire much more than introspective studies of a morbid personal past. I am in favor of the study of the ripened works of the world's past, as a cure for and preventive of the misadventures of the developing personality. I would go back to nature or to the classic past, rather than to infantile memories.

In this I am in sympathy with Walt Whitman in his forceful utterance about introspection:

I think I could turn and live with animals, they are  
so placid and self-contained,  
I stand and look at them long and long.  
They do not sweat and whine about their condition,  
They do not lie awake in the dark and weep for their  
sins,  
They do not make me sick discussing their duty to  
God.

Of course with this quality of character, there must come some self-restraint, some serious and dull hours of work, repressions, inhibitions and even some uncongenial concentration. But I am sure the biologists agree if psychologists do not, that life is made up of inhibitions, since every activity of our vital forces must be guided by some definite directing inhibition, in order to become practically effective. And education would not exist if there had been no enforced guidance of the developing mind. Surely no one has to have more inhibitions cheerfully sustained than a successful medical personality.

#### THE PEAKS IN MEDICAL PROGRESS

I pass now from the subject of the nature of the "humanities" and their relations to the individual physicians. And I wish to call attention to some facts in the history

of medical and human progress which bear on these humanities. These facts have been very interesting to me and I hope I am interpreting them with some justification.

Up to the sixteenth century there were just four peaks in the history of medicine; four periods when medicine received a distinct impetus. These were the great classic period of Hellenic culture at the time of Pericles; the period of activity of the Alexandrian school; that of the second century of the Roman Empire, and that of the late Renaissance.

Real medicine began with that race which gave use the Iliad, Socrates, Plato, Aristotle and the great Greek tragic poets.

And medicine received a new and important impetus only at the later periods mentioned when at the same time the humanities were also especially contributed to the world.

Let me first say a word about some of the earlier periods and the other contributions to the art and literature of civilization.

I have long been interested in the culture of the Chinese. They are a race which has been educated almost exclusively on its peculiar brand of "humanities" for three thousand years. I do not say it is cause and effect, but for some reason the cultivated Chinaman probably on what may be called the "sensory side" represents the most complete and perfect product of God's creative skill in the realm of terrestrial life. He is at any rate a very high type of the *genus homo*. This is shown in his capacity to create and appreciate beauty and the higher forms of sensuous appeal; in his attitude towards life and death and pain; in his power to adapt his social life to his capacities, his enjoyments and his needs. No nation except the Greek has ever produced art equal to theirs; nor has any nation so peculiarly perfected the art of living and of dying without complaint.

But the Chinese with all their classics added nothing to medicine. Was it not because their classics made no broad human

appeal? They were the moral and behavioural sayings of Confucius and Mencius with their followers, and the often beautiful and spiritual appeals of Buddha. All their utterances were concerned with conduct and especially with family life in its ethical bearings, or with a personal sublimation into Nirvana. They had their poets and artists and inventors, but all their classic literature was dominated by ethico-religious doctrines. China never got outside itself; never had any but its own background; its poetry was descriptive; it never produced a great epic nor developed a world literature of classic value. And it added nothing to medicine, because, I am venturing to say, its culture was not broad and not humane. The Chinaman was born chiefly to become an ancestor.

The same things may be said of the Babylonian, Jewish and Indian cultures. They were interested in the stars, in their gods and in the soul; not in the objective observation of nature or man. All that these nations ever gave to medicine were some public health measures from the Jews; some operative skill from India and, from various other sources some of our *materia medica*. Egypt had a noble art, and an extraordinary and interesting civilization, but man was an incident in royal life or priestly ritual. The Egyptians embalmed but never dissected.

In all these nations the civilization was racial and specialized. It was with the Greeks then at the period of their greatest literary, artistic and philosophic activity that medicine really began.

#### THE HELLENIC PEAK

It seems that a race had to be able to create great and enduring works in literature and art, in order to have the ability to see the importance of objective study and to attack with success the science and art of medicine.

Hippocrates perhaps was not one of the group that gathered in the groves of Academe. At least he took no part in the

Socratic dialogues, but he possessed the spirit of the humanists; for as Mahaffy says: "We find even a literary grandeur in his prose, that is not the writing of any but a great master." He had the vision to start with hygiene as the proper basis of medicine—thus beginning at a period at which we are just arriving. He sought to systematize experience by careful observation, to establish laws of hygiene and to utilize the natural prophylactics or remedies afforded by air, water and climate. He originated the famous oath which expressed the highest aims for the practitioner of physic and gives an ideal of conduct that cannot be improved upon today. This *Votum medici* could not have come merely from a medical technician, however well trained.

When Greece lost its independence, a general decadence set in. The school of Cos also began to decline and nothing was added to medicine from this source.

Then three centuries later the school of Alexandria became the world's center of learning and of literary activity, and also of the mechanical sciences and medicine. Here there developed a classic literature of a somewhat lower grade, but with peaks that rivaled earlier periods. The idyls of Theocritus, the poems of Callimachus and Apollonius, the contributions to the Greek anthology survive in literature today.

#### THE ALEXANDRIAN PEAK

Along with this literary renaissance, anatomy and medicine flourished in a way that they had never done before. Hippocrates was a clinician, not an anatomist or physiologist, but at Alexandria anatomy was studied and dissections were made. Not much has survived of Alexandrian work today, but we know that this school educated almost all of the physicians of Europe for the following five hundred years. We have much of its teachings probably in the textbook of Celsus, which was written in the first century and is one of the best works on medical practice that

ever appeared. This was the fruit of the Hippocratic and Alexandrian peaks of medical progress, both developed in a period associated with a great devotion to what we call now the "humanities."

The Romans had their classic writers and no one can deny that Cicero, Virgil and Horace contributed to cultural literature. But they were almost exotics; the Romans loved money and power and had great skill in administration, and the enactment of laws; but they had no interest in any form of natural science or objective study, and they despised medicine. At the time of Julius Caesar they simply began to tolerate it, but without contributing to it.

#### THE IMPERIAL ROMAN PEAK

For one hundred years they gradually grew more civilized and more cultivated: Then:

In the second century of the Christian era, the Empire of Rome comprehended the fairest part of the earth, and the most civilized portion of mankind. The frontiers of that extensive monarchy were guarded by ancient renown and disciplined valour. The gentle, but powerful, influence of laws and manners, had gradually cemented the union of the provinces. Their peaceful inhabitants enjoyed and abused the advantage of wealth and luxury.

I am sure you recognize in the foregoing, the sonorous periods of Gibbon.

This was a time when the eleven bad Emperors who succeeded Augustus were all dead (most of them having been murdered), and the five good Emperors were beginning their sway. It was a period when interest in the humanities rose as high as it ever could rise in a Roman civilization. Every educated citizen felt it proper to write poems, essays and orations. Even the Emperors did this and both Seneca and Lucan were the objects of imperial envy because they were cleverer than their masters. The popular thing from the time of Horace to that of Pliny Secundus was to gather a group of friends and read to them their effusions. These groups as Pliny admits, sometimes got bored. Many of

the wealthy had a professional literary slave to help them in their cultural toil. Every city of any importance had its writers and authors.

Even though the highest type of work was not done in this century, it is probable that no series of writings have affected educators, education and opinion in general more than those of this period. In law there was Quintilian; in medicine, Galen; in history, Tacitus and Plutarch; in philosophy and ethics, Epictetus and Marcus Aurelius; in literature, Martial, Juvenal, Persius, Pliny and Lucian.

The Elder Pliny was stirred to an interest in natural history and he incidentally made real contributions to *materia medica*, though he severely criticized the doctors as they perhaps deserved.

It was at this period that Galen appeared and his work made the first real contribution to medicine since the active studies of the Alexandrian school. In Galen again we find the Hippocratic spirit of wishing to learn by observation and experiment. He used again the methods of the laboratory and added definitely to anatomy and physiology. Galen was a man of surpassing industry and extraordinary learning; indeed he seemed to know everything that was then to be known. He so much surpassed his contemporaries and successors and lifted medicine to such a high plain, that he practically isolated himself, his science and his art. Due to Galen's influence medicine remained upon a sort of intellectual plateau for about one thousand years and while the air of this plateau was stimulating and beneficial for a short time, it eventually became distinctly toxic. Galen's methods were forgotten but his doctrines acquired a strangle hold on medicine up to the time of the sixteenth century.

#### THE SIXTEENTH CENTURY PEAK

I wish I could introduce this period of time with a paragraph as eloquent as that of Gibbon when he wrote of the second century. The Dark and Middle Ages were



not apparently contributing to human knowledge or progress but they were fecundating; and they went into a strenuous but fortunate parturition in the fifteenth and sixteenth centuries. Civilization felt and found new forces and larger opportunities.

The new world had just been discovered, and there was an awakening to the knowledge of the Greek and Roman past, its historic deeds and its classic literature. Learning was becoming more human, theology was no longer queen of the sciences. Universities grew in number and teemed with students. The Medici flourished in Florence. Erasmus, Melancthon and Richepin spread the love of scholarship in England, Germany and France. Marguerite of Navarre had an intellectual, religious and amatory circle in France. Rabelais wrote his tales; Montaigne, his essays; Cervantes, his "Don Quixote." There was a group of learned men and wits in London and there were also Johnson, Spenser and Shakespeare.

But there were also some dreadful things done: The Wars of the Netherlands, the sack of Rome, the Massacre of St. Bartholomew, the looting of Mexico and Peru, the religious wars and the persecutions.

In spite of all these horrors the times were alive, and alive with eagerness for scholarly accomplishment, and finally also with zest for scientific research.

In this century medicine was born again. For it was then that Vesalius published his work aided by the art of his day; and a real anatomy of the human body was given out for the first time in the history of civilization.

Paré reformed surgery; Paracelsus broke into the old academic methods of Galenic medicine; Servetus discovered the pulmonary circulation, Eustachius made an anatomy almost as good as that of Vesalius; Fabricius at Padua was teaching Harvey the method and spirit which led to his discovery of the circulation of blood; Linacre established a course of lectures at Oxford.

But I am not going to keep you in the sixteenth century; the story is a familiar one. The classical spirit had descended upon learning and mellowed the methods and opened the hearts of teachers and students in all departments of knowledge.

My historical points have been made. I may not have convinced you of my view that when a race or a civilization has humanism, it begins to study medicine seriously and accelerate its progress; but I hope the thesis will arrest your attention and make you forget for a time the hero of today, Mr. Henry Ford, who we are told thinks that history is all "bunk."

I do not further pursue my argument but I wish to finish my history. After the sixteenth century medicine stood rather still for 200 years. For from the sixteenth to the nineteenth nothing very much was done, except some additions to chemistry and to the physiology of respiration. The period is full of interesting men and curious and ingenious theories; it forms a stirring record of individual activities, but not of medical progress.

#### THE NINETEENTH CENTURY

During the nineteenth century, medicine really arrived, and since then we have been able to say that there is a medical science as well as art.

During the first half of this time Germany wandered about in a maze of enticing philosophies associated with a convinced nihilism as to the therapeutics of the medical art. Later she found herself. In England and France there arose groups of great clinicians, with powers of observation and interpretation not developed before or since. Jenner started the century with his vaccinations. Then and later came the Hunters, Stokes, Adams, Bright, Brodie, Laënnec and others whose names are identified forever with the recognition of special types of disease or significant and diagnostic syndromes.

The nineteenth century has been variously classified from the cultural point of view as mediocre and Victorian. Of late however both Victoria and her century have

received greater respect. It seems to me that at least humanism and the humanities were definitely pervasive then. Indeed it was in the early part of the century that Hazlitt revived the word and exploited its value with eloquence and emphasis. At any rate I leave the historical phase of the subject and beg to be allowed to say something concerning its relation to the doctor's education and habit of life.

#### EDUCATION AND THE HUMANITIES

The thesis that I am expounding bears greatly on this subject. We all, I think, who have reached mature years like to have an opinion on education. And we have a perfect right, for there is really no established authority, no last word. Education is still an empirical subject, and a fruitful field for opportunism. I am told that a certain much and justly celebrated educationalist visited Chicago not so long ago, and met an almost equally famous health officer. The health officer greeted the educationalist most warmly: "You have done a great thing, Doctor," he said, "you have wiped out fifty medical colleges, and put a lot of cheap doctors out of business. Splendid! Doctor, you are the father of chiropractics."

And so he is, although that was only an incident showing the difficulties and peculiarities of medical educational problems. I am not offering any solution, but I offer one small contribution. Medical education is a social problem as much as it is a technical one. I would urge the value of such kinds of avocational study as help to make the doctor more human; studies which make him love his patient more than the disease, and to realize that patients like being caressed rather than being diagnosed. This is forgotten—therefore we have the chiropractors.

A study of the lives of successful physicians and of the accomplishments and methods of the past, shows often the value of this kind of interest. There is something

instructive to medical educators even in the methods of the ancient medical schools and their products. Guy Patin was possessed of and by the scolasticism of his day, he wrote clever letters, but he was a good teacher, and a good doctor, even though he only used bleeding, ptisans and senna. There was something fine too in the academic ethics of the past. After Jerome Cardan had signed his agreement to treat the Archbishop of St. Andrews for five dollars a day and a bonus, he tore the contract up, as it was unethical for a physician in his day to give his bond, when his word should be enough. I like the way in which by elaborate functions they of old emphasized the importance and dignity of the profession. They would not in those Galenical days tolerate fads or cranks, even to the point of injustice. We need now to apply some culture to our tendency to develop medical fashions. It happens at present that every obscure functional case has to be considered from the standpoint of the internal secretions, oral and colonic sepsis, or the subconscious and apparently we are getting more sympathetic to new fancies.

What kind of education is going to handle these things? A popular view is that we should let the instincts have their play, open up the subconscious and do pluriglandular feeding. In my opinion we can only handle these factors by educating people to have a background and this means a wise development and training of our higher faculties. By obtaining through these such control that we can adjust ourselves to the conditions of life about us, or else change these conditions by our own activities, and thus make the environment adjust itself to us. The processes here are the acquisition of cultural knowledge, as well as technical, and the encouragement of power to inhibit the bad instincts and exploit the good ones. The little red school house has been a very efficient instrument in cultivating inhibitions.

I would insist again that cultural knowledge

is useful as well as it is technical. As far as medicine is concerned a friend of mine, an up-country doctor one day said: "Why don't the colleges give a course in medical history, so the doctors will know what has been done in the world? Then we will not be running quite so much after what seems a new thing."

My own suggestion has long been that medical colleges should have an advisory historian who will help the different departments to prepare historical lectures covering various fields, or step in and lecture himself. Something of this kind would, I know if well done, interest and stimulate medical students immensely.

I do not believe that all doctors need to be educated, certainly not too highly. Learning sometimes spoils the personality. A laboriously acquired education may definitely weaken the driving force and even the capacity for originality. A doctor who gets a good start on a limited original training may rise higher than his educated brother, but he will always become better and happier if as he progresses he acquires a knowledge of the humanities. Physicians who add something on the aesthetic side to their professional training are helped thereby. Doctors, who have some sincere religious feeling and interest, who have some music or art as an avocation, penetrate more easily into the souls, bodies and even pockets of their patients.

It is my conviction that the study of the classics to the point where one knows them historically and somewhat linguistically, forms an avocation that combines intellectual training, enjoyable knowledge and distinct aesthetic values.

WEIR MITCHELL AND THE HUMANITIES

Weir Mitchell in his avocations was very nearly a genius. He did things which were classic of themselves and he must have gotten much technical and help through the arts which he pursued and adorned.

Few can follow his methods or imitate his pursuits, but his life is testimony to the enrichment that comes from having a sound technical training and skill, together with the artistic accomplishments of a poet, an historian and a vivid narrator of appealing tales.

Dr. Mitchell wrote articles on the venom of snakes, on injuries of the nerves, on fat and blood, disorders of sleep, neuralgia, knee-jerks, and neuritis, and he was also interested in the Tombs of Lycia, one of the most obscure provinces of Asia Minor, but rich in antiquities. He wrote perhaps his best poem on a "Lycian Tomb" on which one and the same woman is carved in many attitudes of grief, each figure separated by Doric columns.

What gracious nunnery of grief is here,  
One woman garbed in sorrow's every mood,  
Each sad presentment set apart, in fear  
Lest that herself upon herself intrude.

This was in the most classical trend of his imagination. He also wrote in a modern and personal mood.

Very charming and human was his "Address of a Bottle of Madeira Aged 86, to George Bancroft Aged 86." There is in it a greeting and a goodbye and though the lines are a trifle "wet," I will finish my address and say my goodbye by quoting the last three stanzas:

I

Years eighty-six have come and gone;  
At last we meet. Your health to-night.  
Take from this board of friendly hearts  
The memory of a proud delight.

II

The days that went have made you wise.  
There's wisdom in my rare bouquet.  
I'm rather paler than I was;  
And on my soul, you're growing gray.

III

I like to think, when Toper Time  
Has drained the last of me and you,  
Some here shall say, "They both were good,—  
The wine we drank, the man we knew."

# WILLIAM HEBERDEN, M.D., F. R. S.\*

By PERCY B. DAVIDSON

BOSTON, MASSACHUSETTS

THESE are periods in the history of any science when not only the various theories and procedures must be re-evaluated, but when the science itself must be the object of pragmatic procedure. In an era, such as the present, characterized by a shifting of methods of study of disease from the mechanical approach of a century ago, through the microörganismal of more recent times, and the present chemical attitude, one might, with advantage, look back upon the history of the science as well as the art of medicine, not only for the purpose of orientation but also for the prediction of its ultimate development. Further, in this age of essential utilitarianism, when medical education is becoming reduced to a clock-work procedure in many instances, one might do well to speculate upon how best to reconcile the training of a highly efficient physician with the attributes of a man of culture. The study of the life of a great physician, philosopher, humanitarian, scholar, and classicist may assist us in formulating a more satisfactory point of view. Perhaps no man in English medicine stands out more prominently than does William Heberden for his versatility of accomplishments and far-reaching influence. It behooves one, whether the interest be

general or special history, medicine, philosophy or scholarship, to review the life of such a man and analyze in further detail the importance of his productions, material and ideal.

William Heberden was born in London in 1710, the youngest son but one of Richard and Elizabeth Cooper Heberden. The details of his ancestry are obscure, the earliest known ancestor being his great grandfather, Edward Heberden of Idsworth Park, Idsworth, which estate was reported to have been in the hands of the family since the time of Queen Elizabeth. No information can be found concerning his grandfather, Thomas Heberden, or his father, Richard Heberden, other than that Thomas resided in Chichester and Richard in the parish of St. Saviour's Southwark. Nothing is known of his maternal ancestors. He apparently was the next to



WILLIAM HEBERDEN  
(1710-1801)

the youngest son of a family of six, four sons and two daughters. One of his brothers, Thomas, born in 1703, attained the doctorate in medicine and fellowship in the Royal Society, but information about the other members of his immediate family is not obtainable.

His precollegiate days are enshrouded in considerable obscurity. He entered St. Saviour's, Southwark, July 17, 1717, at the age of seven. He was apparently successful in his work, for it appears that his

\* Read at the Medical History Seminar, University of Wisconsin, April, 1922.

master there induced Mrs. Heberden, whose husband had died in 1717, to send the boy to Cambridge instead of putting him behind the counter, as was then considered, due to the straightened circumstances of the family. His excellence in the classics at school is indicated by the fact that in 1724, he took part in the presentation of the last two scenes of Terence's "Phormio."

After 1724, when he entered St. John's College, Cambridge, we get more intimate glimpses of his accomplishments. In 1728 he was granted his bachelor's degree in arts, and two years later was elected to a fellowship in the college. Thence, his attentions were directed primarily to medical studies both at Cambridge and London, receiving his doctor's degree in medicine in 1739. The physicians with whom Heberden was associated either as student or as colleague during his schooldays are unknown. He remained at Cambridge for nine years, engaged in active medical practice and teaching. It was during this period that his famous "Essay on Mithridatium and Theriaca" was written in the course of his lectures on materia medica. The lectures were masterpieces, not only for their medical references, but also because of their wealth of classical allusions: Homer, Plautus, Virgil, Lucretius or Juvenal were as apt to be called upon to elucidate some point as the time-honored teachings of Hippocrates. He showed that the antidote possessed by Mithridates was composed of simple ingredients—twenty leaves of rue, one grain of salt, two nuts and two dried figs; and that these antidotes were useless for the three poisons known by the ancients, which were hemlock, aconite and venomous beast juices. It was during this time that, as a member of the Society of Friends, author of the "Athenian Letters," he contributed an article "On the State of Physic in Greece, Including a Sketch of the Character of Hippocrates and His Works." His reputation as a physician procured his election as a fellow of the Royal College of Physicians in 1746, but it was not until his departure to

London in 1748 that we see Heberden as a prominent clinician. The circumstances surrounding his removal to London are interesting. He came at the invitation of Sir Edward Hulse, who was at that time physician to the king, "as Dr. Shaw had then gone over to Hanover with the Duchess of Newcastle and he believed that Dr. Heberden could never have a fairer opportunity for commencing practice in London." It was then that he learned that through the treachery of a supposed friend, a previous invitation by Hulse had been refused, after which he wrote to Hulse: "I must reckon it among my greatest misfortunes that this application came too late; though I shall always think myself under the same obligations to you as if I had enjoyed the benefit of your kind intentions" (August, 1748). On Christmas of 1748, he began practice in Cecil Street.

To estimate the popularity as well as the success of Heberden in London practice, it might be well to cite a sixain common in the eighteenth century, evidently about the three most prominent physicians in town:

You should send, if aught should ail ye,  
For Willis, Heberden, or Baillie:  
All exceeding skilful men,  
Baillie, Willis, Heberden;  
Uncertain which most sure to kill is,  
Baillie, Heberden, Willis.

One year after his removal to London, he was made fellow of the Royal Society, to the literary organ of which, the *Philosophical Transactions*, he was an occasional contributor. His reports were numerous and varied in content: One, in the library of Trinity College, concerns a large urinary calculus. In this report he pointed out the mechanical necessity of catheterization to relieve the obstruction; another, was about the utilization of Franklin's lightning rods; another, an account of a calculus,  $3\frac{1}{4}$  inches in length and  $4\frac{3}{4}$  inches in circumference, voided without help from the bladder of a woman; and another, an account of rainfall variations. His reputation as a clinician was rapidly spreading, so that it was not

surprising that in 1752 he was called in consultation with Dr. Mead to see the Duke of Leeds; at this time the inefficiency of Dr. Mead prompted the resolution, later observed, to retire a doctor when still in complete possession of his faculties. In 1752 he married Elizabeth, the daughter of John Martin, a prominent citizen and member of Parliament, of Overbury in Worcestershire. His wife died in 1754, leaving him two sons: John, who died in infancy, and Thomas, who was Canon of Exeter and father of a well-known physician, Thomas Heberden. In 1760 he married again, this time, Mary, the daughter of William Wollaston, who, in

took the opportunity of recommending to the king an obscure though capable physician who was engaged by his majesty. In 1778 Heberden, the clinician, was known on the continent so well that he was elected an Honorary Member of the Royal Society of Medicine at Paris. Cowper, writing his poem on "Retirement" at about this time (1781), says:

Virtuous and faithful Heberden, whose skill  
Attempts no task it cannot well fulfill,  
Gives melancholy up to Nature's care,  
And sends the patient into purer air.

In 1782, when seventy-three years of age, in accordance with a resolution made pre-

*4, uti videtur, Heberden natus est anno 1710  
Londini, in qua urbe solitus pariter libris incho-  
tibus est educatus anno 1728 ingressus est in Universi-  
tatem, ubi in collegio S. Thomae studium medicum  
suis instituit, postquam annos quatuor collegio successu  
est electus in illa academia S. Thomae operam dedit  
primum in academia Caroliniana, postea in regio-  
nis Londinensis. Tunc itaque medicinae Doctor  
artem hanc rececit Cantabrigiae, excoctor decem  
annis, atque simul Materiam medicam, Historiam  
et usus serventium academiam quatuordecim annis.  
anno 1748 completus est in regium Collegium Medi-  
corum apud Londinensem. Divinae partibus, tam-  
quam in Collegio, et inchoavit, ubi Regis Carolus  
socius electus est, atque in ea urbe inter quatuordecim  
physicorum, ubi supra viginti annos membrum dicitur.  
atque jam grandis aetate, ut a tantis laboribus pau-  
lulum se excluderet, cepit elagere, qui studium per  
aliquos menses in exilio, quam habuit Windsoriae ad  
imperatorem ad urbe Lugdunensem. Tunc inchoavit in urbe  
videtur, et postquam annos octo inchoavit  
anno 1748 auctor fuit Collegii medicorum Londin-  
ensium, ut Commentarios Galeni, vulgares in Latinum  
verum, quos fieri non ratio Collegii obprobret, oculis  
et scriptis periculis promovendos. Hoc consilium  
unanimes Socium unanimes comprobatum est, atque  
ad ea duo volumina, et postea in vulgari edita  
sunt anno 1778 hepar Joannis Medicinae, a Regi  
Christianissimo Patris instituta, etiam in series  
suis nominare non deservit, et  
Nonnulla quoque observationes reserant in  
Actis Philosophicis Regis Carolus Londinensis,  
et in Actis medicis Collegii medicorum Londinensium.*

FACSIMILE [REDUCED] OF HEBERDEN'S AUTOBIOGRAPHY WRITTEN ON HIS ELECTION TO THE  
ROYAL SOCIETY OF MEDICINE AT PARIS.

the absence of contrary data, appears to have survived him. The progeny of the second marriage consisted of eight children, of whom two survived their father: Mary, who married a clergyman, and William, who attained considerable renown as a physician, and was physician to the king. Heberden's reputation was such at this time that George III named him physician to Queen Charlotte, then coming to England, but he declined "because he was apprehensive it might interfere with those connections of life which he had now formed." His thoughtfulness was such at this point, when he

viously, Heberden retired from active practice. At first he withdrew for the summer months to Windsor and practiced during the winter in London.

Attending always, but attending more  
Where sorrow ask'd his presence, than before,  
Tender and ardent, with the kindest air.—CRABBE.

In 1794 he writes:

I have entered my 85th year; and when I retired, a few years ago, from the practice of physic, I trust it was not a wish to be idle, which no man capable of being usefully employed, has a right to be; but because I was willing to give

*Mos ille fuit in agrotantium cubiculis  
anatare ea, que vel ex sporum, vel ex agrotantium  
ore audirent, vel quorum ipse lecti fuerat. Hac ite  
replem suscepit, ut solent, et multa forsan etiam  
aliqua, cum agrotant. Quicquid autem in cubiculum  
relatare, singulis manibus potest, ut acciperet  
ea, qua videbantur vel maxime, non deservire, vel  
vires removere illis. Hac in alium lectum trans-  
fere solitus fuit, cui lectus marmoris, ad quos per-  
tinebant. In animo illi erat ea hoc lecto conficere  
voluntatem Collectatorum, et tantum ad historiam  
medicam et remissionem. In quo ad mirandum relego  
ille fuit aliquid lectis mandare proterquam quod  
in chartis anno factum inveniret, multum enim hanc  
medicorum doctrinam tantum in chartis relinquit,  
quam in lectis lectis accipere, vel etiam quam et sola  
memoria, quod desit, singulis, non tantum, et ubi  
toto memoria felle. Ipse vero rationi hunc operam  
nam officinat, cum dies et septuaginta annos comple-  
verat, et annos etiam a laboribus studiorum aculeis  
cepit. Hac itaque charta, ut vult, una et lectis vix  
medicam studium a completenti, legat, ut pete, non  
poterat illa in lectis, sed etiam, quamquam indigna,  
que in lectis adirent.*

*Decipit de mensis anni*

over, before my presence of thought, judgment, and recollection was so impaired, that I could not do justice to my patients. It is more desirable for a man to do this a little too soon, than a little too late; for the chief danger is on the side of not doing it soon enough.

In 1783-4 Heberden was in attendance upon Samuel Johnson in his last illness. Boswell writes:

Dr. Johnson being asked in his last illness what physician he had sent for, "Dr. Heberden," replied he, "*ultimus Romanorum*, the last of our learned physicians."

In 1785 Heberden read his last paper at the College of Physicians—"Of the Measles." In 1787 he was elected vice-president of the Royal Humane Society, of which William Hawes, Cogan and he were founders. His active life was hampered by a fall in 1796, when, attending services in the Chapel Royal, St. James, he fractured his thigh. In 1800 a most unusual occurrence was the complimentary reference to him in the Harveian oration by Dr. Henry Vaughan, then physician to the king; previously such an honor had been accorded only to the deceased. On May 17, 1801, Heberden died at the age of ninety-two at his residence in Pall Mall; at his death he was Senior Fellow of the College of Physicians. His body lies buried in the parish church of Windsor.

In this brief survey of Heberden's life, one cannot but note the variety of his interests and the success attained in their pursuit. It is of the man as a social being, as a scholar, and as a physician that more detailed study is fitting.

A truly successful physician must, because of the conditions confronting him, be endowed with a high social consciousness. Heberden was not only social in the ordinarily conceived sense of the term, in his everyday as well as his Sunday ethics, but he was noteworthy because of his honesty, intense altruism, humanitarianism and fine sense of values in human relationship.

We are informed from many sources about the qualities which endeared him to all about him. Dr. Macmichael tells us:

Dr. Heberden was forward in encouraging all objects of science and literature, and promoting all useful institutions. There was scarcely a public charity to which he did not subscribe, or any work of merit to which he did not give his support. His address was pleasing and unaffected; his observations cautious and profound. He had a happy manner of getting able men to exhibit their several talents, which he directed and moderated with singular attention and good humor.

His son, William, in the introduction to the "Commentaries" sums up those traits which made his father so revered:

From his early youth he had always entertained a deep sense of religion, a consummate love of virtue, an ardent thirst after knowledge, and an ardent desire to promote the welfare and happiness of all mankind. By these qualities, accompanied by great sweetness of manners, he acquired the love and esteem of all good men, in a degree which perhaps very few have experienced; and after passing an active life, with the uniform testimony of a good conscience, he became an eminent example of its influence in the cheerfulness and serenity of his latest age.

Crabbe speaks of his sick-room manner thus: "Tender and ardent, with the kindest air."

We see Heberden then as a genial, witty individual whether in the drawing-room or sick-room, a radiant figure to whom a rare degree of confidence was entrusted. No record brings out more definitely the remarkable personality of the individual than does a letter concerning the conduct of the College of Physicians written by Dr. Wells, personally unacquainted with Dr. Heberden, to Lord Kenyon. Dr. Wells writes:

But Dr. Heberden, my lord, stands in a manner alone in his profession. No other person, I believe, either in this or any other country, has ever exercised the art of medicine with the same dignity, or has contributed so much to raise it in the estimation of mankind. A con-

templation of his excellences, therefore, can afford little help towards obtaining a just notion of the general worth of physicians. In speaking of a mole-hill, we could not employ terms that had relation to the immensity of a mountain.

It is improbable that a man's medical prowess could have so elevated him in the minds of the people above Baillie, Willis and others of the time; his personality, in addition to his high medical attainments, like that of Osler's, must have been a potent factor in determining the esteem in which he was held.

There are no records of his intimate associations with eminent medical figures of his day. But, if we may judge by his early call to London by Sir Edward Hulse, and the honors bestowed upon him by the Royal Society, the College of Physicians and the Royal Society of Medicine of Paris, his relations must have been most cordial. We find him cooperating with physicians in their work as evidenced by his interest in vaccination and his attempts to further its procedure, and his foundation with Hawes and Cogan of the Humane Society in 1774. Neither of these movements was universally looked upon with favor, but Heberden, true to the form of the ideal physician, was willing to risk possible disfavor for a public good.

His honesty as well as his high sense of social obligation is brought out strikingly in his retirement while still apparently in possession of full capabilities. The feeling that he might not do justice to his patients, after the impairment of his faculties, led to his retirement, although some of us might consider it premature.

It is to be regretted that we cannot look upon this delightful personality in his home. The affection and admiration of his son William, as well as the latter's ultimate medical success, might be looked upon as criteria of his domestic kindness and influence.

One may judge of the versatility as well as the worth of an individual by his friends. He enjoyed intimate relations with the

chief literary and scientific men of his day, such as Gray, Jacob Bryant, Mason, Cavendish, Bishop Hurd, Bishop Lowth, Stuart, Benjamin Franklin, Conyers Middleton, Markland and Johnson. His cooperation with Franklin in the latter's vaccination propaganda in America, his patronage of Middleton and Markland and the high esteem in which he was held by Samuel Johnson, all bear testimony to his worth.

When the mechanistic concepts of science are routing religious allegations as well as experiences of those identified with it, it is interesting to inquire into the religion of a man whose rational skepticism was an outstanding characteristic. We are informed by Dr. Macmichael that he was a man of the utmost piety. One of the most striking bits representative of his piety as well as his tolerance was his attitude toward Conyers Middleton's "Inefficacy of Prayer." The account is that Middleton's widow called upon Heberden with the manuscript for posthumous publication. Dr. Heberden said that "though the work might be deemed worthy of the learning of her departed husband, its tendency was by no means creditable to his principles, and would be injurious to his memory"; accordingly, after finding out how much a publisher would pay for the manuscript, he consigned it to the flames and paid, according to some accounts, £200 to the widow.

Let us leave Heberden, the man, and look at the eminent classical scholar of the time. At an early age, his interest in the classics was evident, for at the age of fourteen we see him taking part in the presentation of Terence's "Phormio." At Cambridge he became a member of the Society of Friends, contemporaneous with his work at the University and his "Athenian Letters." To this society he contributed an article, a letter from Cleander to Alexias "On the State of Physic in Greece, Including a Sketch of the Character of Hippocrates and His Works." With this one publication, his productivity in the classics as an author ceased, but the frequent classical allusions in his medical



works and his influence as a patron of the scholars of his time were noteworthy to the end. His early lectures at Cambridge on *materia medica* are full of classical allusions, Juvenal, Lucretius, Pliny, Virgil, and Cicero being repeatedly referred to. That he was recognized as a man of learning is apparent from his associations with many literary figures of the time and from the epithet with which Johnson characterized him, "*Ultimus Romanorum*, the last of our learned physicians."

With the pressure of what must have been a very large practice, though unable to contribute to the literature on the classics, he still took a deep interest in the subject, and contributed largely by patronizing other writers. In this connection his friendship with Markland and Middleton is noteworthy. He paid the cost of printing Markland's annotated editions of Euripides' "*Supplices Mulieres*" and "*Iphigenia at Aulis*," and "*Iphigenia in Tauris*." He assisted Conyers Middleton in the publication of his "*Appendix to his Dissertation on the servile Condition of Physicians among the Ancients*." Second only to his rôle as a great physician is the part he played in the classics, Latin, Greek and Hebrew; later in life, when medicine became more enveloping, both because of interests and obligations to his patients, his literary enthusiasm was relegated to a lesser place.

William Heberden, as the physician, stands out more prominently than in any of the other activities of his life. Very few men whose outstanding claims for greatness are those bound up with a great personality, live on, for there are few Boswells to leave readable accurate accounts of their lives. Heberden had no such biographer. His scholarship, though of a high grade, was not of the productive variety and would not have given him an enduring position in literature. In the rôle of physician, however, greater appreciation should have been accorded him than has been the case up to the present. In fact, the only point of medical interest upon which

he is well known is the description of the digital nodes, now universally called "Heberden's nodes."

Before analyzing the various factors which go to make Heberden a great physician, let us review his publications. His earliest publication was that of "*An Essay on Mithridatium and Theriaca*" in 1745, which was one of his lectures given at Cambridge, in which he exposed the uselessness of the mithridatics as antidotes for poisons. The publication of the *Medical Transactions* was undertaken by the Royal College of Physicians at his suggestion in 1763. From 1763 to 1768 he made two contributions to the *Philosophical Transactions* concerning urinary calculi. In the *Medical Transactions* from 1768 to 1785, sixteen papers were contributed by Heberden on various medical subjects. The latter years of his life were spent in rearranging his many accurate clinical notes into the "*Commentaries*" which were written in Latin, edited and later translated into English by his son, and translated into German by Soemmering. These "*Commentaries*" have passed through many editions both in England and abroad, and are remarkable not only because of their accuracy of description but because of their essential attitude, which was to subject each symptom and sign to experimental procedure rather than to classify it in terms of Hippocratic criteria.

Heberden's medical accomplishments stand out strikingly because of his philosophical approach rather than from any single great discovery. Living in an age when orthodox adherence to Hippocratic teachings was the "right thing," and when philosophical and scientific systems tended towards formalism, Heberden appears as the promulgator of the method of rational empiricism rather than the a priori procedure of his contemporaries. His attitude, like that of modern eminent clinicians, was that of first studying the patient as an individual, and later relegating the case to its proper place in the system, without dis-

carding details for the sake of a more coherent system. When Dr. Lettsom complimented him on his paper on Hippocrates, he said he cared little for it, and that he would rather know what men would be thinking two thousand years hence than what they believed two thousand years ago. In his preface to the *Medical Transactions* his attitude is apparent. He says:

Though the principal view of the college be to perfect the history of diseases, and to ascertain the effects of medicines, yet any other papers will be received, which in any manner relate to medical subjects . . . It were also to be wished, that writers would not confine themselves to relate only their successful practice, but that they would have the courage to tell us the ineffectual and hurtful.

He further sums up his ideas thus:

The deference which is sometimes required in physic to the authority of the ancients, would incline anyone to suspect that the improvements in the art of healing had not kept pace with those which have been made in other branches of natural knowledge. Philosophers have long ago thrown off Aristotle's tyranny; yet some physicians still choose to wrangle about the meaning of the ancients, rather than to consult nature herself. Are they afraid of approaching her immediate presence, without making use of the intercession of Hippocrates and Galen? And is that reverence to be paid still to her once faithful ministers, which is properly due to nature alone, notwithstanding all that Bacon and Harvey and Newton and our other great reformers have witnessed against this mistaken veneration? In works of genius the ancients are unquestionably our superiors and best patterns; but in that sort of knowledge which depends wholly upon experience, the latest writers must in general be the best. Experience may, in politics and morality, be called the teacher of fools; but in the study of nature, there is no other guide to true knowledge: accordingly the practice of physic has been more improved by the casual experiments of illiterate nations, and the rash ones of vagabond quacks, than by the reasonings of all the once celebrated professors of it, and theoretic teachers in the several schools of Europe: very few

of whom have furnished us with one new medicine, or have taught us better to use our old ones, or have in any one instance at all improved the art of curing disease.

This rational skepticism appears to have led him to a pessimistic attitude towards medical progress, a condition which all scientific men experience towards their respective sciences. In his "Commentaries" he writes:

The art of healing has scarcely hitherto had any guide but the slow one of experience, and has yet made no illustrious advances by the help of reason; nor will it probably make any, till Providence thinks fit to bless mankind by sending into the world some superior genius capable of contemplating the animated world with the sagacity shown by Newton in the inanimate, and of discovering that great principle of life, upon which its existence depends, and by which all its functions are governed and directed.

As a clinician, Heberden was the peer of his generation. That his bedside manners were most effectual and that his inspiring of confidence was noteworthy have already been pointed out. It is rather for his knowledge of medicine and its application than for his therapeutic results through a charming personality that we shall discuss him more fully.

It is apparent from his writings as well as from the data concerning his reputation, that he must have been a diagnostician of rare ability. In his reports in the *Medical Transactions* those on angina pectoris and chicken-pox are especially striking as the first complete descriptions of those diseases. He considers angina pectoris due to a spasm of the vessels, in essence similar to intermittent claudication and the vascular crises described by Pal, but he notes that in an autopsy done by John Hunter on such a patient, ossification of the aorta was present, thus suggesting the relationship to arteriosclerosis. The eruption in chicken-pox is carefully described and differentiated from smallpox. Among the other reports, those on nyctalopia, hectic fever,

the pulse, the nettle-rash, diseases of the liver and epidemic influenza are noteworthy. A case of nyctalopia after quinine therapy in a lead worker with paralysis is described; no attempt is made to explain the condition, but three possibilities are present: First, that it was a specific effect of the quinine; second, that a peripheral neuritis existed in the course of the lead poisoning, and third, that embolism due to the plasmodium malarie might have occurred. Hectic fever was looked upon as due to repeated formations of purulent material rather than its absorption, as his contemporaries had felt. His initial remarks on the pulse are as pertinent today as they were in his time:

All who begin the study of physic must find in the doctrine of the pulse, as collected from medical writers by Bellini and others, a great deal which they do not understand; and all who have advanced a little in the practice of physic, can have very little doubt of its not being understood by the authors themselves.

He carefully noted the factors in health which affect the pulse, dividing these into two classes: First, those arising from bodily organization, as sex, temperament, and stature, and second, those arising from difference in conditions of life, as time of day, state of system (rest or activity), mental agitation, and food intake. In the report on diseases of the liver, he refutes the opinion prevalent among poets that every object appears yellow to a jaundiced person. In the discussion of the nettle-rash, urticaria, the course is described as well as the relation to food intake, a factor which in modern allergy studies has been shown to be a potent one.

The "Commentaries" is essentially a differential diagnosis with occasional case-histories interspersed. Pettigrew objected seriously to the alphabetical arrangement according to diseases, but a better arrangement does not seem possible. This work represents the accumulation of many years of bedside data of an honest, accurate and acute observer.

The first record one gets of Heberden's nodes is found in his "Commentaries." Calling them "digitum nodi" he says:

What are those little hard knobs, about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top, near the joint? They have no connection with the gout, being found in persons who have never had it; they continue for life; and being hardly ever attended with pain, or disposed to become sores, are rather unsightly than inconvenient, though they must be some little hindrance to the free use of the fingers.

His observations on various other conditions are especially interesting because they show a distinctly modern trend. He does not appear to differentiate diphtheria from what he calls "malignant sore throat," but suggests that this is, in most instances, the streptococcus sore throat which we speak of, for he notes its occurrence in scarlet fever and also points out its rôle as a focus of infection as follows: "I have likewise observed this disease (malignant sore throat) to have been succeeded by rheumatic pains and swellings." Apropos of our concepts of "rich man's gout" is the following: "Strong wines and in no small quantity have the reputation of being highly beneficial to gouty persons; which notion they have very readily and generally received, not so much perhaps from a reasonable persuasion of its truth, as from a desire that it should be true, because they love wine." He apparently did not differentiate the various types of dyspnea in speaking of asthma, but included the breathlessness of cardiac insufficiency as well as the expiratory dyspnea of bronchial asthma under the term, for he cites an instance apparently with cardiac insufficiency: "A copious spitting, and a sudden oedematous swelling of the lower parts of the body, have apparently saved asthmatic persons from impending death," and in the protocol of the autopsy on an asthmatic he says: "The lungs were sound and free from adhesions. In the aorta, auricles and ventricles were found rough polyposc concretions, and the valves between the left

auricle and left ventricle were contracted into irregular hard tuberosities." In the differential diagnosis of tuberculosis and asthma these remarks are striking: "It is observable in pulmonary consumptions, where the whole lungs are diseased, and where a great part of them has been destroyed, that patients have indeed a shortness of breath upon motion, but not any of the violent fits of suffocation which belong to asthmas; while in examining the lung of asthmatic persons after death, there has sometimes appeared no hurt obvious to the senses, which could account for the difficulty with which they had often performed their office." Speaking again of angina pectoris he says, "The angina pectoris, as far as I have been able to investigate, belongs to the class of spasmodic, not of inflammatory complaints." He does not interpret the polyuria of diabetes as an indication of renal damage for, "if the diabetes be, as I am inclined to think, the symptom of some other distemper, and not the disease of any of the organs which secrete the urine, the only useful remedies will be those which are directed to cure the principal malady, of which the diabetes is but an appendage." His observations on pulmonary tuberculosis are interesting, for he emphasizes the protean manifestations, the amenorrhoea and the diarrhoea of the terminal stages, which probably are due to intestinal involvement. He cleverly differentiates a case of granulomatous lymphadenosis, possibly Hodgkin's, from tuberculosis, saying: "All the other symptoms of a pulmonary consumption, except bloody and purulent spitting, I have observed in one whose mesenteric glands after death were found to be scirrhous, but whose lungs were sound." He emphasized the untoward effects of pregnancy on the course of tuberculosis: "In women of consumptive habits the state of pregnancy seems to hasten the appearance of the cough, and of all the other symptoms: The distemper makes a rapid progress at this time, and yet the patients often hold out beyond expecta-

tion till they are brought to bed, and not long after." The debilitating effects of the coexistence of syphilis and tuberculosis are noted: "The scrofula and lues venerea, when they meet, seem greatly to exalt the malignity of each other." His knowledge of cardiac arrhythmia is impressive. It is apparent that he realized the limitation of pulse determinations, for he says: "The pulse, though in many cases a useful index of the state of health, yet is no certain one in all; and without a due regard to other signs it may mislead us." That he recognized the pulse of auricular fibrillation appears likely, for he says: "I suspect that the artery beats oftener than it can be felt; because such slow pulses are usually unequal in their strength, and some of the beats are so faint as but just to be perceived; so that others, probably, still fainter, are too weak to make a sensible impression on the finger." He dispels the older ideas of the pathognomicity of extrasystoles thus: "Some books speak of intermitting pulses as dangerous signs; but I think without reason; for such trivial causes will occasion them, that they are not worth regarding in any illness, unless joined with other bad signs of more moment. They are not uncommon in health, and are often perceived by a peculiar feel at the heart by the persons themselves every time the pulse intermits." From these excerpts from the commentaries, it is apparent that Heberden was a most unusual diagnostician considering the development of medical science in the eighteenth century.

Hardly less interesting than his diagnostic ability, is his appreciation of the psychic factors in disease. In speaking of hysteria he says: "I would by no means be understood, by anything which I have said, to represent the sufferings of hypochondriac and hysteric patients as imaginary; for I doubt not their arising from as real a cause as any other distemper." This is in line with the monistic concept of mental disease of Adolf Meyer and other modern psychiatrists. In his chapter on insanity, he

describes with great exactness the manic-depressive type, the first complete description of which was credited to Kraepelin, saying:

Those who have been cured of lunacy, are very apt to have relapses; and some divide their whole lives between madness and reason. Such as never return to the use of their senses, are alternately under the dominion of spirits, either too drooping or too elevated; in each of which states it is not uncommon to have them pass several months together; they appear most reasonable in the melancholy fit.

Heberden, like Osler, was interested more particularly in diagnosis than in therapeutics, feeling that when the nature of the disease was discovered, satisfactory treatment could be easily instituted. He was a foe of the usual shotgun medicines of the day, to such an extent that the following excerpt from Cowper's poem seemed fitting:

Gives melancholy up to Nature's care,  
And sends the patient into purer air.

He was interested in improving the general hygiene of his patient, such as the diet and mode of living, and in using drugs rather in a palliative fashion. Thus in tuberculosis we find him advocating the following therapy:

The patient must be contented with instructions which may enable him to avoid what has been found to aggravate the distemper and by a proper regimen to put the general health into the best possible state; that the natural powers implanted into the body of readjusting any disordered part, may be able to exert themselves with the greatest vigor: Nor needs the patient to despair of success from this care and attention.

Regarding activity in the tuberculous he says: "The exercise which he can take with the most pleasure, and with the least fatigue, will be most desirable." He advocated the use of mercurials in skin diseases. He was especially interested in the comfort of the patient, for he says:

And surely though the recovery of the patient be the grand aim of their profession, yet where

that cannot be obtained, they should try to disarm death of some of its terrors, and if they cannot make him quit his prey, and the life must be lost, they may still prevail to have it taken away in the most merciful manner.

He used specifics where possible, but he emphasized what few scientific physicians today do, that their primary object is to make the patient comfortable.

Throughout the "Commentaries" we see frequent references to the correlation of the clinical condition and the pathology observable at autopsy. His observations on angina pectoris, asthma and tuberculosis have already been referred to. His analysis of the pathology in gallstones is interesting, especially inasmuch as he emphasizes the possibility of hepatitis, peritonitis and pleurisy by extension. Regarding the pathology of the larger bile-ducts he says:

I have had an opportunity of examining the gall-ducts of some, whom I had frequently seen in fits of the jaundice; and I found them much distended beyond their natural diameter throughout their whole length, but very unequally. The same appearances are very common in the ureters of those, who have had many stones pass from the kidneys to the bladder.

Heberden in the rôle of hygienist was an impressive figure. His interest in the Humane Society was but one of his public health measures. His participation in vaccination propaganda and his influence in its introduction into the United States are recorded in his correspondence with Benjamin Franklin. His knowledge of disease immunity was unusual. He says:

It is observable, that of infectious distempers, some, like smallpox or measles, can be had but once; or very seldom oftener, as the malignant sore throat, and whooping-cough; or only in particular circumstances, or certain constitutions of the air, as the dysentery, camp fever and plague; but the itch and the venereal distemper are very generally communicable at all times to all persons who come in the way of their contagion.

Regarding tuberculous infection, he appears to have made an erroneous assumption in thinking that children who had enlarged cervical and mesenteric glands were especially prone to pulmonary tuberculosis; the modern tendency has been that tuberculous lymphadenitis confers a relative immunity from pulmonary involvement except where the mediastinal glands are involved.

Soemmering has said that Heberden was "medicus vere Hippocraticus." Yet he has lived but feebly in the minds of physicians even a hundred years after his death. He had made no great discovery in the study or treatment of disease; yet he lived as a conscientious polished physician, a scholar of rare ability, and a man of lofty ideals. Such a man stabilizes rather than advances a science, evaluates rather than augments its procedures, and establishes a more intimate relationship with the cultured world at large.

He was not, as Johnson has said, "the last of our learned physicians." He was but the beginning of the line of acute clinicians

who made English medicine of the nineteenth century, as represented by Bright, Hodgkin, Addison and, in America, by Osler. He forms the transition from Hippocratic formalism to scientific medicine.

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## CHRISTOPHER WIDMER

By M. CHARLTON

MONTREAL, CANADA

A never-to-be-forgotten name in the early history of medicine in Toronto, is that of Christopher Widmer. A name that exercised a great power in both medical and lay circles, not only in Toronto but throughout the Province. Everything pertaining to such a man is of interest, and it was with a thrill of pleasure that we recently added to our collection a little book used by Widmer while a student at Guy's Hospital. The title-page reads: "Elements of the Practice of Physic for the use of those Students who attend the Lectures read on this Subject at Guy's Hospital." Printed in the year 1798. His signature is written on the fly-leaf, "Christopher Widmer, 1803."

The book is interleaved with blank pages on which he has written various comments on the lectures. At the time Widmer was a student, Guy's Hospital had one of the most flourishing medical societies which was called "The Physical Society of London." This society drew a crowd of distinguished men who took an enthusiastic part in all its meetings.

Doctor Widmer was born at High Wycombe, Buckinghamshire, England, May 15, 1780. From the records of the War Office in London, we find that he was hospital mate in June, 1804. On August 15, 1805, he was appointed assistant surgeon of the 14th Dragoons and surgeon to the same regiment on October 24, 1811. In

1812 he was appointed to the staff. As assistant surgeon and later surgeon to the famous regiment of the 14th Dragoons, Widmer served with distinguished honor in the Peninsular War of 1808-14. He was present at the five great battles of Vittoria, Busaco, Salamanca, Fuentes de Onoro, and Tal a Vera. For this service he had the right to wear the medal with five clasps.

Canada had scarcely recovered from the effect of the conquest when the War of 1812 broke out, and once more, the country was devastated. The prosperity of the country under British rule was again brought to a standstill by the second invasion of the Americans. Harrassed on all sides by her foes, Britain could only spare a few regiments for the defense of Canada, but with the defeat of Napoleon she was able to send further assistance, and among the regiments hurriedly sent over were some of the 14th Dragoons and with them came Christopher Widmer as staff surgeon.

The heroic behaviour of the troops throughout the long campaign, the hardships they endured on their long weary marches, with but little rest and insufficient food, and the diseases from which they suffered are worthy of a fuller notice than there is scope for in this article. The surgeons attached to the various regiments had their hands full in looking after the wounded. That part of the province which stretched from Fort George to Fort Erie was one of the principal fields of active operation. After the battle of Lundy's Lane, the general hospital at York was filled with the wounded, and the medical departments were hard worked, not only at York, but along the Niagara frontier. Not alone was the hospital filled to overflowing, but the houses attached, and finally, the church had to be converted into a hospital during the campaign of 1814.

At the close of the war, Widmer decided to stay in Canada, so on February 25, 1817, we find him retired on half-pay and beginning his arduous duties as the only qualified medical man settled at

York. Other military surgeons followed Widmer's example and settled in Canada both in the Upper and Lower Provinces.

The influence of these early military surgeons upon the medical, political and social life of Canada has been most marked, and no student of early life in Canada, can afford to pass this period without a close study of the part played by the military surgeon. For the most part, they were



DR. CHRISTOPHER WIDMER  
(1780-1858)

men of trained minds and great bravery, men who had passed through the hospitals of Great Britain; brilliant, cultured men with all the best traditions of the old country, to whom the spirit of adventure spoke and drew them with an irresistible fascination to the unknown New World.

Dr. Widmer's fame as a surgeon and physician soon spread throughout the province, and residents from distant parts made the long, toilsome journey to seek his advice and help. His practice took him far afield and every one soon came to know the slight erect figure sitting his horse with that graceful seat which only comes from long practice and the skill of superb horsemanship. Few riders could have taken

such a wild John Gilpin ride as the doctor did when he was summoned to Kingston to attend Lord Sydenham. The road to Kingston in those days commenced at King street, going slightly north and then straight; crossing the River Don by a bridge. Dr. Widmer accomplished this long, difficult ride of one hundred and sixty miles without stopping, save to exchange horses which were held in relays for him along the way.

The first ten years of the Doctor's life slipped by in a whirl of work. There were also days when he gave himself up to the pleasures of a life so totally different to what he had experienced, a life in which he tasted the joys of roaming through great forests and sailing on lakes so vast that they seemed like seas. His ardent imagination caused him to build his house where he could have a view of the bay and the beautiful island opposite. The shores of this island were alive with game of all sorts and were wild and picturesque.

Perhaps the deepest impression on Widmer's mind in these early days was made by the building in 1820 of the long wished for and at last realized hospital, a hospital of which he became the life and soul. One of his many devoted pupils writing about him later says:

It was always a treat to follow him around the wards, for whatever he did or said relating to a patient was worth seeing and hearing. In the operating room he was most brilliant. More than once I have seen him complete an operation with tact and precision over which another doctor, although skilful, became embarrassed.

His enthusiastic admirers compared him, as an operating surgeon, to Sir Astley Cooper.

In Dr. Scadding's "Collections and Recollections," he describes the hospital:

The old hospital was a spacious, unadorned, matter-of-fact, two-story structure of brick, one hundred and seven feet long, and sixty-six feet wide. It had, as we have heard, the peculiarity of standing with its sides precisely east and west, north and south.

In 1824 this building was described as one of the largest buildings in the Upper Province, but by 1832 it was found to be too small, so rapidly had the town of York developed. It was in this same year that the students attending the hospital for clinical instruction formed the "York Students' Medical Society." A librarian was appointed and the sum of four dollars charged as an entrance fee to defray the expense and to assist in binding books for the society. Three years later, the medical profession held a meeting at the hospital to form a medical library.

Dr. Widmer's interests were not confined to the hospital alone; he took a very active interest in the Medical Council. His name appears in the minute book of the Society at nearly every meeting from 1819 to 1855. The Doctor was one of the members of the Society who took up the question of public health. A board was formed and the members waged war against the former crude methods of dealing with sanitary matters and urged daily employment of scavengers. Unlike their confrères in Montreal, they acknowledged the great superiority of the American cities in matters of sanitation. By 1828 Dr. Widmer's practice became so extensive that he took as a partner Dr. Diehl who had lately come to York from Montreal. This partnership lasted for six and a half years.

As late as 1782, Upper Canada was a wilderness of forests with the exception of small clearings around the forts. Roads through the country were little better than trails abounding with swamps. Bridle paths marked by blazed trees ran through these forests and led to the clearings. The progress of York although retarded by the war, was wonderful. In 1834 it was incorporated as a city under its original Indian name Toronto. From its incorporation as a city to 1844 the population was nearly doubled. The hamlet had become a city and there was wide scope for a man like Widmer with his untiring zeal and activity.

He accepted many important positions,



and as a member of the Legislative Council more than once went to Montreal and Quebec. He was the first president of the Medical and Chirurgical Society, which he founded in 1833.

Dr. Widmer was one of the first in Upper Canada to recognize the value of vaccination. He had a notice placed in the papers stating that he would inoculate the children of the poor free of charge. The first inoculation in Canada were performed at Quebec in the year 1768 by a Mr. Latham, surgeon to the King's (or 8th) Regiment of Foot.

been a pamphlet written in 1815, by A. MacDonald, Secretary of the "Institution for Vaccine Inoculation." The first medical journal published in Toronto was the *Upper Canada Journal of Medical, Surgical and Physical Science*, 1851-52. In this first volume the name of Widmer appears at the head of a number of signatures. As the paper has to do with a new medical bill believed to be introduced into the Province, it is thought worth while to give it below.

We, whose signatures appear below, adopt this means of expressing our entire dissent from



DR. WIDMER'S HOUSE, 1837.

It was a double gabled two-story house of brick, built by Dr. Widmer, a pioneer physician and surgeon of early York and Toronto. After Dr. Widmer's death in 1858 it was occupied by his son-in-law, Capt. John Clarke, and was demolished in 1900.

Although the introduction of inoculation into Canada was not attended with the antagonism it elsewhere created, yet at times, letters appeared complaining of the practice. For instance, in the *Kingston Gazette* of 1812, a Mr. Freedom wrote a letter in which he said: "That a doctor having no one to practice upon, induced one of his children to be inoculated for smallpox and through that the disease devastated the neighbourhood."

The only literature published in Canada on the subject at this time seems to have

the principle sought to be introduced into the proposed Bill for Incorporating the Medical Profession in Upper Canada; namely, that British Graduates and the members of British Colleges shall be excluded from the right of practicing in this Province, unless they undergo an examination in addition to that by which they have obtained their British credentials; and we are confident we shall carry the voice of a very large majority of the Professors with us.

At this time the condition of medicine in Western Canada left much to be desired. A number of quacks had appeared from

over the border, and in an editorial in the same Journal the following is voiced:

It is undoubtedly a source of reproach to the Medical Profession in Upper Canada that there exists no means of regulating its internal economy, no tribunal of professional opinion before which offenders against etiquette and morality can be judged, which existed in other countries from a remote period of time and which has been respected and upheld.

A citizen of high ideals, Widmer performed his duty regardless of public opinion. He acquired wealth and fame and held the foremost place as surgeon on the continent.

In the magnificent new home of the old Toronto General Hospital hangs a fine painting of the Doctor. It is a fitting memorial to one who had by his distinguished services added fame to the hospital.

Dr. Widmer is described by one who knew him as being of medium height, somewhat taller than Lord Roberts, but having much the same figure and erect soldierly bearing, with quick and active movement.

His only son, to whom he was passionately attached, died in 1857 and a year later while paying a visit to his grave, Dr. Widmer fainted and died shortly afterwards.



THE OLD GENERAL HOSPITAL, YORK (TORONTO) AS WHEN OCCUPIED BY THE  
GOVERNMENT OF CANADA

It was built 1820-4; occupied by Provincial Legislature 1825-8; used as a hospital 1829-55, and for Government offices 1856-9.

A SIXTEENTH CENTURY LATIN POEM ON THE DISEASES OF  
NURSLINGS: "PAEDOTROPHIA," BY SCÉVOLE  
DE SAINTE-MARTHE\*

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INTRODUCTION

SCÉVOLE de Sainte-Marthe was born on February 6, 1536. He belonged to an illustrious family of Poitou, which had given a great number of men distinguished in letters, the sciences and public functions during the sixteenth and seventeenth centuries, to France.



SCÉVOLE DE SAINTE-MARTHE  
(1536-1623)

In his youth Scévole displayed propensities for study which indicated that he would equal, or even surpass, his eminent ancestors, and in reality, having been placed under the guidance of no lesser men than Turnebec, Muret, Ramus and Duarin, he so greatly profited by their instruction that

\* Read at the annual meeting of the Society of Medical History of Switzerland, Berne, August 24-25, 1922.

he became a new star in the legal firmament of France.

Scévole de Sainte-Marthe, whose real name was Gaucher, which he exchanged for that of Scévole (of which Scævola is the Latin translation), was surveyor-general of finance of Poitou and afterwards president of the paymasters of France.

Sincerely devoted to Henri III and Henri IV of France, he opposed the Leaguers and was present at the États de Blois, likewise at the Assembly of Notables in 1597. Being appointed mayor of Loudun, he was regarded as "The Father of his Native City."

From the pen of Scévole we have "Gallorum doctrina illustrium qui sua patrumque memoria florere, Elogia" (1598), and some much appreciated French and Latin poems, the "Pædotrophia" being among the latter.

Sainte-Marthe died at Loudun in 1623.

THE POEM

"Pædotrophia, seu de puerorum nutritione, libri iii," is an excellent Latin poem and at present of exceeding rarity. It is dedicated to King Henri III and in the dedicatory epistle, which is in French, the author states that the subject of his poem is "la manière de nourrir les enfants à la mammelle, et de préserver ces jeunes et tendres plantes contre une infinité d'orages et de tempêtes qui les menacent, et souvent les font périr même en leur naissance," and he adds that "dans le désir de rendre cet ouvrage utile à tous les sujets du Roi, il a résolu de le leur communiquer dans peu en langue française, si c'est une chose agréable à Sa Majesté."

This dedicatory epistle is dated at Fontainebleau, 1584, but the work was not translated into French until 1698, which was the

fifty-sixth year of the reign of Louis XIV, and seventy-five years after Scève's death. The translation was made by Abel de Sainte-Marthe, the author's son.

Cousin, in the *Journal des Savants*, June 5, 1699, says that the poem was read in the most celebrated universities of Europe with the same veneration as the writings of the ancients and that it had been translated into several languages.

Scève de Sainte-Marthe begins his poem by an invocation to the Muses and Apollo, after which he addresses Henri III and undertakes to sing the exploits of this prince.

Next comes the turn of Scève's wife and the poet exhorts her to omit nothing to preserve the offspring that God has accorded to their marriage. At the same time he dwells upon the necessity for mothers to suckle their nurslings themselves.

After these remarks the poet describes the care that pregnant women should take of themselves in order successfully to go through their gestation and have a happy delivery. On this subject he formulates several precepts as follows:

1. Not to be too tightly clothed for fear of disturbing fetal development.
2. To control all passions and avoid sadness, fear or too great joy.
3. Rest should follow work and work should succeed rest.
4. To eschew all forms of dancing.
5. To indulge as little as possible in *coitus*.
6. To select carefully all foods and that of all meats the pregnant female should prefer pigeons and turtle-doves, partridges, capons, pheasants, veal and kid, while should her taste turn to fish she should choose that which is found in sandy pools among rocks or the sea and to avoid all articles of diet that are salt or too crude.

7. To drink water to which a little wine is added.

8. To control certain peculiar appetites, such as for unripe fruit and above all the desire to eat plaster, cinders or other

similar things and to correct such pathological appetites by eating olives, capers and pomegranates, these fruits being very propitious for cleansing the stomach and to remove from this viscus an acrid pituita which, in pregnant females, produces these absurd desires.

Next our author undertakes to explain the nature of certain marks on the cutaneous surface of newly born infants resulting from maternal imagination; after this he considers the subject of women about to be confined. From the standpoint of a poet, he would have it that women invoke the protection of the goddess, Lucina, who presides over labors, three times in succession in a loud voice, after which he advises, that they are to choose, when in labor, the most comfortable position for being delivered. He leaves to them the choice of being upright, seated or recumbent, but he nevertheless maintains that it is better that the act should be accomplished in the upright position.

The second book commences with an account of what should be done as soon as the infant is born, namely: To transport the mother to a properly prepared bed, to wash the infant and dress it, but before this the umbilical cord is to be cut and the resulting raw surface is to be dusted over with powder composed of mastic and myrrh.

At this point the poet seizes the opportunity to state that formerly the part called the umbilicus, retained the two sexes united in such fashion that they formed a single one, although in reality there were two, but after this bond of union ruptured, each of these bodies became free.

After giving vent to this fable, the author refers to certain signs which will indicate the physical make-up of the newly born. He maintains that if the infant cries weakly after his birth and if he shows evidence of little vigor it is a sign that he was begot by a father in poor health or that he suffered *in utero* from maternal ill-nourishment or lastly, that during birth he sustained some considerable traumatism.

Scévole next advises to keep the child very warm if it be winter, but if it be summer to keep him in a very temperate place. According to him, a most important thing is to introduce some antidote into the mouth of the infant, especially mithridate. He also insists that the infant's body should be sprinkled over with wine and that if he is very feeble one should warm him by blowing over him with the mouth and he is convinced that the warm breath is far superior to any other remedy for fortifying the infant, especially if while blowing, a piece of cinnamon bark be held in the mouth.

As has been remarked, our author insists that as soon as it is born the child should be washed in water and at the same time he enjoins cleansing of the ears, eyes and mouth and to impart to each limb, by gentle wielding, the shape and rectitude that they should possess in order to compose a harmonious whole, as he puts it.

When the bath shall have softened the infant's skin, the body surface should be gently rubbed with finely powdered white salt in order to harden the cutaneous surface and then a cradle, linen and bands are to be in readiness. Narbonne honey should be administered to the infant in order to purge it, after which it is placed in its cradle without too warm coverings. Scévole takes this opportunity to mention the example of François, the last Duke of Anjou and the Princess, his spouse, who suffocated their offspring by covering him too warmly during the night.

At this point the author turns to the choice to be made in the selection of a wet-nurse. He advises that she shall be neither young nor old, fat nor thin; she should be cheerful with a clear, bright complexion, the arms and neck somewhat long, the chest broad, the breasts full and projecting and what is of the utmost importance is that the nurse shall never have had a miscarriage.

Scévole dwells upon the subject that from the very first the child should be given but little milk at a time, but often, and each time that by his cries he asks to

nurse, he should be given the breast. When the infant has attained the age of eight months, a time when the teeth begin to come through, a more solid diet should sometimes be given, at others only milk, that is to say sometimes broth, sometimes pap, sometimes milk. One should often crumble bread and cook the crumbs in the broth or milk. It is also well to give occasionally some oil of sweet almonds or a little butter and one should not mistake the child's cries due to severe belly-ache for those due to hunger, because if food be given it, when the trouble is due to wind-colic, the stomach thus becomes overloaded and vomiting will ensue.

The third book of the poem deals with those diseases to which children are subject shortly after their birth, as well as their treatment. The affections referred to number in all eighteen, the first being inflammation of the umbilicus.

The umbilical cord, which is cut at birth, sometimes causes great pain, either because the resulting wound by itself excites this pain, or because the ligature of the cord is tied too tightly, hence inducing inflammation.

The second affection referred to by the author is a short *frænum linguæ*. To divide it, he advises either the finger-nails or scissors, but he points out that if the nail is used great care must be taken because inflammation (otherwise sepsis) of the mouth ensues.

The third affection treated is ranula which according to the description given by the author, is "a small acute tumour," situated under the tongue and it may sometimes be so large as to hinder the respiration. Scévole supposes that the lesion is due to milk containing acrid bile, this causing fever.

As to treatment, he advocates the administration of lemon or pomegranate juice, boiled with sugar in a large amount of water, and besides this, the neck, cheeks and temples of the infant are to be rubbed with tepid oil of violets, at the same time instill-

ing a few drops into the ears. Finally, one should cook some barley-meal in milk for making a poultice which should be applied over the chin of the infant.

Inflammation of the throat is the fourth subject treated. According to the author this morbid process also results from a bilious and ill-conditioned milk. The treatment advised is to correct the bad quality of the milk and to attain this end the nurse should remedy herself, but the author does not say with what drugs. Otherwise, he recommends the same remedies given for *ranula*.

The fifth malady is ulcers of the mouth which occasionally extend over the entire palate and corrode the throat from their acidity if time is lost in cutting the affection at its very roots. "These ulcers often develop," says the author, "when the milk contains a large amount of mordant serosity which corrodes the gums, or because the milk ingested becomes corrupted in the child's stomach, a vapor arises whose fumes burn the mouth."

As to treatment, the author recommends (1) that the nurse should correct the quality of her milk by following a moderate diet; (2) that rose-water, honey or myrrh or powdered oak-gall be applied to the ulcers.

The sixth affection dealt with is the teeth. Scévole remarks that all the diseases to which he has so far referred, occur especially at the time when the teeth begin to appear, but he maintains that it is because the teeth endeavoring to open up a passage by means of an acrid humor which, he says, serves them as an auger and the boring action causes cruel pain.

To assuage the pain, he recommends rubbing the gums with a hare's brain or honey and if the pain remains obstinate to treatment, the infant's head should be moistened with ordinary water and rose-water, each being tepid, and then the head should be covered with a woolen cap.

The seventh disease described is constipation and the author points out that all treatments so far described will be futile if

the child's bowels are at all confined. In order to procure a free action he advises giving honey either by mouth or in the form of a suppository, but if honey be wanting a cabbage stalk, a piece of beet or mallow-root may be inserted in the rectum.

The eighth malady described by Sainte-Marthe is diarrhoea. This affection is very common when the teeth begin to be cut. As to treatment, the writer prescribes the seeds of white poppy in infusion, or myrtle and galangal ground together and then mixed in milk.

The ninth affection dealt with is colic and to soothe it our author advises rubbing the abdomen either with oil of camomile, oil of dill or very old olive oil. They should be very hot when applied.

The tenth affection is worms, which make themselves known by several symptoms. The author, like all physicians of his day, gives as symptoms: An ill-smelling breath, drowsiness, blinking, interrupted sleep with startled awakening, a dry cough and frequent itching of the nose.

As to treatment, he recommends two ordinary remedies, namely, a worm-powder called *Barbotine* or *semen contra*, mixed in a baked apple or in pap, and the plaster of ox-gall and caraway seed applied over the abdomen.

Vomiting is the eleventh affection dealt with and the author says that, since children do not vomit excepting when they ingest too much milk at a feeding, all that is necessary is to regulate the quantity taken at each nursing.

The twelfth subject treated in the poem comprises insomnia, nightmare and cough, all of which Scévole regards as being the result of the same cause as vomiting, that is to say, undigested milk. He says:

When children have taken more milk than their stomach can digest, the milk transforms into crudities from which thick vapor arises and this vapor imparts to their imagination (during sleep) false mental pictures, and since the brain by its nature is cold, these vapors entering into its substance there become condensed in the

same way as clouds in the air and like them fall into rain, hence irritating the throat of the child from their acrid moisture, producing cough which ultimately falls upon the chest.

*Prolapsus recti* is the thirteenth subject discussed in the poem. To remedy this condition the author recommends fomenting the buttocks with astringent remedies and to reduce gently the prolapse with the hand.

The cause of prolapsus is relaxation of the muscle attached to the large intestine, hence this muscle can no longer raise up the gut.

The author next discusses eczema of the scalp, after which he describes smallpox and measles, which he regards as two distinct diseases, although the Greeks, he says, comprised them under a single name, *viz.: exanthema*.

He next endeavors to explain their cause and to do this he states that the veins of children are filled with an impure blood which has been injected by the nurse's blood, so that Nature expels these impurities after birth.

As in these diseases there reigns great heat and burning, Scévole recommends allowing the patient to drink large quantities of cold water. He likewise advises the use of an infusion of honey for both the nurse and infant.

If the disease proves to be obstinate, Scévole sagely advises to do nothing and he raises his voice against the custom of his day, not only among women, but also among physicians, of employing such violent remedies with intent to cause the poison of smallpox to come forth that, in reality, these potent drugs produce large numbers of ulcers in the throat which obstruct the respiratory tract.

He says that this ill-timed method of treatment of the smallpox was the cause of the death of two of his children and he adds that if the two children still remaining were attacked by this disease, he would unhesitatingly have them bled in order to divert the humor from the throat. According to certain of Sainte-Marthe's contemporaries,

he was the first to advocate bloodletting at the very onset of smallpox, a practice that was afterwards followed for many years.<sup>1</sup>

For that matter, from the fear that Nature may be unable to eliminate by her own efforts the corruption still remaining in the blood, Sainte-Marthe recommends resorting to the use of an herb that he calls the "Lime-tree herb" whose juice is diaphoretic and hence will eliminate the existing impurities in the blood.

The pustules of smallpox occasionally attack the eyes, nostrils, throat, lungs and intestines. The eyes should be kept moistened with rose-water or else the nurse should squirt her milk on them. The author also recommends to rub the eyes with saffron; the juice of pomegranate is also good, but the seeds of this fruit appear to the author to be no less effective in preserving the throat from the ravages of the disease, when they are given to the child to chew.

As to the nostrils, the author remarks that the smell of very strong vinegar is very good, while as to the lungs he approves the use of an electuary composed of lentils and gum tragacanth. For the intestinal lesions he prescribes a decoction of lentils.

When the child's body is completely covered with pustules, he orders taking violets, camomile, mallow and sulphur, mixing them together in tepid water, with which the entire body of the patient is washed. By this means, he says, the pustules reach maturity and little by little give exit to the pus pent up in them. But if on account of hardness of the skin they cannot burst, Scévole believes that then they should be pricked with a needle, but

<sup>1</sup> That bleeding at the onset of smallpox was not practiced in Sainte-Marthe's time is very possible, but it was the practice of the Arabian physicians and warmly advocated by Serapion, Ebn Ishak Honain and Rhazes. Nothing can be more explicit than Rhazes' directions in this respect in his work, "De pestilentia," in the book "De variolis et morbillis," "Et cura Variolarum cum incipienti signa, est phlebotomus, sed postea non, etc."

I would add that this practice was much criticized by the physicians of the epoch.

When the pustules have dried up, roses and myrtle are to be applied over them and afterwards they are to be anointed with oil of white lead. With this treatment the scabs fall off and the bed linen will be found full of them.

The last malady treated by Scévole is epilepsy. He begins by a description of the disease and its symptoms, after which he considers the cause and here he raises two doubts, namely: (1) This strange malady perhaps may result from a sticky pituita which overfills the brain and thus prevents the animal spirits from becoming distributed, the latter making every effort to escape from those places in which it has become imprisoned, so that the nerves, from their very origin, suffer from violent jerks

in order to eliminate that which is injurious to them. (2) Epilepsy may also be due to a vapor derived from a cold poison which, after having been distributed throughout the entire body, finally insensibly reaches the brain, which then undertakes to defend itself against this invasion, but the greater the thinness of the vapor, the more easily will it penetrate the cerebral substance.

After these remarks the author points out that several great men have been the subjects of epilepsy, among others being Hercules, Cæsar and Mohammed.

Such is the "Pædotrophia" of the famous Scévole de Sainte-Marthe. This excellent poem is a perfect work from the view point of poesy, while in many respects it is very interesting from the standpoint of the history of medicine.



Mark of Giunta, from *Mercurialis*, Hier. Venice, 1603.



# GUY PATIN AND THE MEDICAL PROFESSION IN PARIS IN THE SEVENTEENTH CENTURY

By FRANCIS R. PACKARD, M. D.

PHILADELPHIA, PA.

(Concluded)

## THE PHYSICIANS OF PARIS VERSUS THOSE OF MONTPELLIER

In a letter to Belin, June 9, 1644, Patin summing up his opinion of Renaudot, says:

The Gazetteer could not confine himself to medicine, which he never practiced, having always sought to make his living by some other occupation such as schoolmaster, author, pedant, spy on the Huguenots, gazetteer, usurer, chemist, etc. The occupation he followed last was the practice of medicine, which he never knew; he is a braggart, and an ardelio, of whom the crest has been lowered by the decree which we, the Faculté de Médecine, have not obtained by our power but by the justice and goodness of our cause, which was founded on a policy necessary in so great a city against the irruption of so many barbarians who have practiced swindling here in place of medicine.

In a footnote, Triaire<sup>1</sup> points out that this passage refers to physicians who were not members of the Faculté de Médecine of Paris, an especially large number being graduates of Montpellier, who came to Paris and tried to establish themselves there in practice. The provost of Paris decided on December 9, 1643, and his order was affirmed by the Court of the Parlement of Paris, March 1, 1644, that no one should practice medicine in Paris who was not a doctor or licentiate of the Faculté de Médecine of Paris or an *agrégé*. By an old decree of November 5, 1504, exception was made for those who were physicians to the King or royal princes, or the greater nobility, during such time as the Court was in residence in Paris or its environs. After its great victory over Renaudot, the Faculté became so assured of its power that it refused to register the physicians to the duc d'Orléans and the prince de Condé.

This apparent illiberality was not confined to the Faculté de Médecine of Paris.

<sup>1</sup> Lettres de Guy Patin, 1907.

While the physicians of Montpellier were trying to exercise the right to practice their profession in Paris, in spite of the statutes of the Faculté, they at the same time were prohibiting the practice of medicine at Montpellier by outside physicians by virtue of an ordinance of Louis XII dating back to 1496.

In a letter to Spon, December 6, 1644, Patin accuses the Faculté at Montpellier of selling its degree of doctor of medicine, and says that many who have begun their studies at Paris, go later to Montpellier and purchase their degrees. He adds that he scarcely knows of an illustrious physician of Montpellier and humorously quotes—"parturiunt montes, nascetur ridiculus mus." He then states that their fame was due to their knowledge of Arabic medicine, Guy's pet aversion, and that any real knowledge they had was derived from Paris. "We have for antiquity the greatest number of physicians to the kings, and the greatest men who have most profited the public by the excellent writings which they have left us."

It is rather curious to find Patin mentioning the position of court physician as a distinction. "There were scarcely any illustrious physicians of Montpellier before Rondelet, who had studied at Paris and owed his learning to our schools." Rondelet is frequently referred to by Patin in terms of respect. He was an eminent anatomist who for lack of other available anatomical material, dissected the body of his own dead child before his class at Montpellier.

In the same letter Guy writes most venomously of two physicians of Montpellier, Héroard and Vautier. The former was first physician to Louis XIII, and from his journal, which has been preserved, concerning the health of the king, we learn he was

a very wise and skillful man; but Guy says he lost no opportunity to hit at the Faculté, probably because that august body was always jealous of his position and anxious to belittle him. Vautier was first physician to Louis XIV and Patin says he prided himself on three things, namely; chemistry, astrology, and the philosopher's stone, "but one does not cure the sick by these beautiful secrets. Hippocrates and Galen are the beautiful secrets of our profession, which he perhaps has never read." Vautier had been physician to Mazarin, and Patin states his belief that he will never be made *premier médecin* to the king because Richelieu in the plenitude of his power had never dared have his physician, Charles, appointed to the king in this capacity. Patin was disappointed in his prognostication, for Vautier was appointed, as we have said, first physician to Louis XIV. Vautier had been first physician to Marie de Médicis and had great influence over her. He was imprisoned during the reign of Louis XIII for his participation in some of her conspiracies. Patin says, "M. Vautier condemns our Faculté sufficiently often. He says we have only bleeding and senna, and boasts of his having great chemical secrets. He gives antimony boldly in any illness, even to children."

Patin refers frequently to the efforts made by the physicians of Montpellier to have their right to practice at Paris established. On September 12, 1646, he writes Belin that they have presented a request to the Council by Monsieur Vautier which was rejected, the Chancellor stating that the decree of 1644 was only a confirmation of the ancient privileges of the Faculté de Médecine, given after the parties to it had been heard in five public hearings, and that it must stand. Guy adds:

In other times foreign (not Parisian) physicians wishing to practice, called themselves chemists, spagyrics, Paracelsists, boasting to cure the worst diseases without bloodletting, and to possess great secrets against all sorts of diseases, but today, we see here very ignorant strangers and charlatans who have no shame,

and brazenly state that they are physicians of the Faculté of Montpellier.

Many of Patin's letters are in the same strain and the repetition grows somewhat monotonous. Cortaud, Dean of Montpellier, felt so aggrieved by the attack on the physicians of his school in the Renaudot controversy that he took up the latter's cudgels and wrote a most violent tirade against the Faculté de Médecine of Paris and against Patin. This gave rise to further replies on their part, one by Riolan.

#### OPPOSITION TO THE USE OF ANTIMONY

Patin's attitude as regards the use of antimony was not simply, as so often represented, a blind hatred of the remedy, or due solely to the fact that its use was popularized by the so-called chemical school of medicine. He writes to Spon<sup>2</sup> that he considers it (and he must say justly so) a very dangerous and pernicious remedy except in the hands of physicians who are both judicious and experienced and that it is rightly considered dangerous because its use has become widely spread in the hands of barbers and quacks whereby many people have been killed.

This opposition to the use of antimony got Patin into trouble during his term of service as Dean of the Faculté de Médecine. One, Jean Chartier, a member of the Faculté having published a work advocating its use without having previously submitted it for the approval of the Faculté, Patin arbitrarily removed his name from the list of members of the Faculté. Chartier brought a complaint against Patin in the court of the Parlement of Paris. This august body having decided against Patin, reestablished Chartier in its membership, and condemned Patin to pay a large part of the cost of the process. This decree was rendered in 1653.

According to Bayle,<sup>3</sup> Patin made a great register of those whom he claimed had died through the administration of antimony to them. He proposed to publish it under the title "Le martyrologie de l'antimoine."

<sup>2</sup> June 2, 1645.

<sup>3</sup> Dictionaire. Art., Patin.

It will be recalled that Molière in "Le Médecin Malgré Lui" puts in the mouth of the young peasant, who comes to consult Sganarelle, the remark that an apothecary had wished to give his sick mother some *vin émétique* (antimony) but that he fears it will kill her, "as they say these great doctors kill I do not know how many people with that invention."

Patin's correspondence contains innumerable references to the deaths of prominent persons which he claims were due to antimony. A typical instance is one he details to Spon, December 6, 1650. M. d' Avaux, one of the superintendents of finances, was ill with some pulmonary trouble. Piètre, Seguin, and Brayer were treating him, but a relative (as sometimes happens even today) interfered and insisted that he should be seen by Vautier. The latter promised to cure him with a beverage he would give him.

The poor man swallowed the antimony on the good faith and standing of M. Vautier. An hour afterwards he commenced to cry that he was burning and that he saw that he had been poisoned, that he was sorry that they had allowed him to take the remedy, and that he regretted that he had not made his will. Then the poison having ravished his entrails, he died vomiting, three hours after having taken it.

According to Patin many said that Mazarin had had him poisoned as he was a bitter enemy of his. The day after Vautier was calling on de Maisons, the other superintendent of finance, when the latter said to him with pleasing candour, "*Voilà*, two superintendents of finance that antimony has killed this year. I pray you do not make me the third." He referred to the deaths of d'Esmeray and d'Avaux.

Antimony was usually administered as *vin émétique*. Patin in a letter to Spon, January 8, 1650, says: "*Vin émétique* is ordinarily nothing but an infusion of *Crocus metallorum* in white wine. As for the antimony goblet, it is more than twenty years since I have seen one, nevertheless the late M. Guénault had one which he used sometimes." Antimony cups or goblets,  *pocula*

*emitica*, had a great vogue in the seventeenth century. From the traditional origin of the name antimony one would have thought Patin would have been an advocate of its use. The metal, first known as *stibium*, was used as a medicine, especially by Paracelsus in the sixteenth century, but was introduced into wider medical use in a work entitled, "*Currus triumphalis antimonii*," purporting to have been written by a monk, named Basil Valentine, which was published in 1604. It is believed by most historians that no such person as Monk Basil ever existed, and that the name was chosen as a pseudonym by Johann Thölde, a Thuringian chemist. The author of the book alleges that he had observed that some pigs which had eaten food containing antimony, became very fat. He was led by this observation to try what its effect would be on some monks who had become very much emaciated as the result of prolonged fasting. *Horrible dictu!* They all died. Hence the name of *stibium* became replaced by the designation of *antimoine*, antagonistic to monks. Certainly if there is anything in a name Guy should have been an antimonialist of the most determined kind.

The history of the controversy about antimony is very curious and interesting. It raged at Paris for over one hundred years, dividing the profession into two camps, the antimonialists and the anti-antimonialists. It was waged not only in the conclaves of the Faculté but in the courts of law, and it caused the bitterest personal animosities and recriminations. After the publication of Valentine's book it became so popular and was used with such recklessness, that there were undoubtedly many fatalities from its improper administration. This led the Faculté to issue two decrees, in 1566, and in 1613, which were confirmed by the court of the Parlement of Paris, declaring antimony a poison and reprehending its administration. Notwithstanding these solemn denunciations many physicians in Paris, even members of the Faculté, continued to

prescribe it. It must have been a sad blow for Guy when in 1666, the antimonialists finally triumphed, and the use of antimony as a medicine was formally admitted by the Faculté, and ordained by a decree of the Parlement of Paris. The vote repealing the decrees against it, and admitting it to the pharmacopeia was carried by forty-eight members of the Faculté, against eight. Poor Guy writes Falconet (July 30, 1666):

The cabal of the last assembly has wronged its reputation. These gentlemen say that a poison is not poison in the hands of a good physician. They speak against their own experience, because most of them have killed their wives, their children, and their friends. However that may be, they speak well of a drug which they dare not taste themselves. I console myself because it is necessary that there should be heresies so that the truth may be proved, but I have never been of the humor to worship the golden calf, nor to consider fortune (wealth) as a goddess. God preserve me from it in the future. I am content with the mediocrity of mine. Peace and little! When the wind shall change, all these champions of antimony will scatter like the smoke from their furnace.

As would be expected from one of his temperament, Guy's opinions of his contemporaries are not always born out by the facts we know concerning them. As an instance of this may be cited his violently unjust criticism of Julian Le Paulmier, one of the best known physicians of his time. Le Paulmier or Palmerius (1520-1588) received the degree of doctor of medicine at Paris in 1556, served four years as a physician to the Hôtel-Dieu, and was the student and friend of Fernel who bequeathed him his books and manuscript writings. Patin says he served Fernel as his "valet" for twelve years and that in recompense Fernel had him given the degree of doctor. In 1569 Le Paulmier published a book "*Traité de la nature et curation des playes de pistolle, harquebuse et autres bastons à feu, ensemble les remèdes des combustions et brûleurs extrêmes et superficiels,*" in which, while agreeing with Paré in many of his views, he differed in others and even brought

the charge that the great mortality among the wounded at the siege of Orléans and at the battles of Dreux, and St. Denis was due to the methods of treatment employed by Paré and the other surgeons, thereby provoking a response from Paré. Although a Huguenot, Le Paulmier was physician to Charles IX and to Henri III and held by them in high esteem, as also by many of the great nobles of the court. He published two treatises on the medicinal use of wine and cider, and a number of consultations of his master, Fernel. In a letter to Spon in April, 1643, Patin calls Paulmier a wily Norman, adding that a Norman by race and a physician by profession possesses two powerful degrees to become a charlatan, and that he had bragged that Fernel had bequeathed him some very powerful secrets. He also accuses Paulmier of having, at a time when cider was not familiar as a beverage at Paris, brought up a quantity from Normandy and having put a little senna in it, sold it at a great price, as a wonderful secret remedy, thereby making a large fortune. Patin's hostility was possibly due to the great esteem in which he held Fernel and to a sort of jealousy of one who should have the right to be considered a favored disciple. Pierre Le Paulmier, Julian's nephew, published, in 1609, a book "*Lapis philosophicus dogmaticorum,*" in which he advocated the doctrines and medicines of Paracelsus and the Chemical School, at that time most vehemently combated by the Faculté de Médecine, for which he was suspended by his colleagues. Patin records somewhat vauntingly that "he continued in his chemistry, which suffocated him, having been surprised by an apoplexy near a furnace in the year 1610." Pierre Le Paulmier in turn left his papers to Théodore Turquet de Mayerne (1573-1655), the famous "chemical doctor" whose practices brought him under the ban of the Faculté de Médecine to such an extent that he was obliged to leave France and settle in London, where he became physician to James I, and after him to Charles I and Charles II, and

achieved great fame and practice. Mayerne published at Geneva a book, entitled, "Enchiridon chirurgico praticum," which Patin says was undoubtedly composed from the papers Fernel had left Le Paulmier, which the latter bequeathed to his nephew, and he in turn to Mayerne.

It will be recalled that Mayerne, Guénault, and others persisted in prescribing antimony after it was decreed by the Faculté de Médecine to be a poison and that the decrees of the Faculté had been solemnly authorized by the Parlement of Paris in 1566 and in 1615.

No words suffice to express Patin's detestation of Bourdelot (1610-1685), physician to Louis XIII and the Prince of Condé. Patin had been summoned to Sweden to act as physician to the notorious Queen Christina. He declined and Bourdelot went in his stead. Bourdelot is accused of encouraging the Queen in her vicious habits. Patin dwells especially on his avarice. "He disregards and always will disregard the Sunday Sermon to secure a quantity of gold."<sup>4</sup>

He lies nearly as much as he talks, and when he can he deceives the sick also. He brags here in good company that he was the discoverer of the circulation of blood, and that his colleagues do all in their power to deprive him of the credit. He is a deep-dyed flatterer, grand servant of the apothecaries, and with all his fanciful bragging, a horrible liar.<sup>5</sup>

Patin adds that he had been apprentice to an apothecary and educated in his father's barber shop. Bourdelot's real name was Pierre Michon but he assumed the name of his uncle, Edmund Bourdelot, physician to Louis XIII. Mazarin bestowed an abbey on him. Patin's bad opinion of him seems born out by contemporary evidence although the language in which he expresses it is hardly seemly.

Patin's hatred of the Chartier family, of whom there were three physicians, René, the father and his two sons, Jean and Philippe, was intense. Jean Chartier, as

told above, had been guilty of writing a book in favor of the use of antimony, and worse than that he had won in his legal action against Patin for reinstatement in the Faculté de Médecine. René Chartier was a very erudite man who devoted his life to the publication, in Greek and Latin, of a very commendable edition of the works of Hippocrates. When René died in great poverty Patin wrote to Spon (April 21, 1655) with exultation over his misfortunes, that "the widow is in desperate straits and Jean is living on the charity of the Bishop of Coutances." He was unable to pick any serious defects in Chartier's "Hippocrates" so he descended to a supercilious remark that it should contain a table of contents. Guy's heart was never touched by compassion when his opponents suffered. Such misfortunes only seem to have added bitterness to his angry contempt for them.

A typical instance of Patin's attitude towards members of his profession whom he disliked, or rather hated, for it was not his wont to water his wine in such matters, is to be found in a letter he wrote Falconet, March 23, 1663, concerning a book written by Charles Bouvard (1572-1658). The latter was a brother-in-law of Riolan, fils, and had been physician to Louis XIII. He claimed that it was by following his advice and drinking the waters of Forges, that the long years of sterility of Anne of Austria were terminated, and that she gave birth to Louis XIV, and his brother.

When a very old man he set himself to write a book for the reformation of medicine. The book was entitled, "Historiæ hodiernæ medicinæ rationali veritatis ad rationales medicos," and was published in a very small edition at Paris about 1655. Patin wrote of it to Falconet on several occasions, telling him that Bouvard had shown advance copies to only three persons, Riolan, Moreau, and himself. Patin thought very poorly of it. He says that though Bouvard was at one time an excellent man he was now senile, and that his life at the Court had corrupted him. He terms him elsewhere a devout

<sup>4</sup> Letter to Spon, March 2, 1643.

<sup>5</sup> Letter to Spon, January 8, 1650.

humbug, who would rather go to church twice than once. Patin writing some eight years after the publication of the book said that Bouvard was told by Riolan that he had better suppress the book as it contained matter which would anger Cardinal Mazarin, and his two favorite physicians Vautier and Valot. Bouvard accordingly withdrew from circulation the books that had been printed, Moreau and Patin both returning the copies he had submitted to them.

I know that he had talked to the late King (Louis XIII) of the merit and capacity of some of the doctors through whose hands the King had passed, until finally the King exclaimed, "Helas, how unfortunate I am to have passed through the hands of so many charlatans!" These messieurs were Héroard, Guillemeau and Vautier. The first was a good courtier but a bad and ignorant physician. M. Sanche, the father told me in the past year that he was never a physician of Montpellier. The second was a wily courtier, who greatly desired to make a fortune, but the misfortunes of the Queen Mother, from whom he had hoped to receive it, carried him away, and the demon character of the Cardinal was stronger than his. So much so that he succumbed, and whatever effort he had made since, he has not been able to recover, although he has moved heaven and earth, and the late Prince of Condé himself spoke for him, even to Cardinal Richelieu himself, as well as to the late King and the Queen Mother. He had some good qualities, he also had evil ones. I associated with him twenty-seven years. We graduated at the same time. I knew well how he behaved. M. Baralis and I were his physicians until his death. Finally, I knew that in his practice there was much of hypocrisy and finesse; but also there was good doctrine and virtue, that is to say, of mixed merchandise. Vautier was an ignorant Jew of Avignon, very boastful and uneducated. He was fortunate not to have been hung, and he would infallibly have been so, if the poor Queen had lived six months longer. He had made counterfeit money, and subsequently found means to ensconce himself at Court. The disgrace of the Queen Mother gave him the entrée at Blois by the credit of Madame de Guercheville. He bragged that he possessed chemical secrets. . . . The Marillacs used him in their conspiracy against

Cardinal Richelieu. The Day of Dupes<sup>6</sup> came. The Cardinal arrested the Marillacs and they were lost. Vautier was arrested and imprisoned in the Bastille for nearly twelve years. At length the scene and theatre of the Court being changed, he became *premier médecin du roi*, by means of 20,000 écus which he gave to Cardinal Mazarin, who took from all hands, on condition, so they said, that he should be his spy. That is politics! He had been the father's prisoner for twelve years and they trusted him with the health of the son.

Another person who was most antipathetic to Patin was François Guénault, physician to Louis XIII, his wife, Anne of Austria, the Prince of Condé and many of the greatest personages of his time. He had probably the largest and most fashionable practice of any of the physicians of Paris, but he was a confirmed advocate of the use of antimony. He figures as Macroton, with the three other court physicians in Molière's "l'Amour Médecin." He was accused of being avaricious and unscrupulous. Patin writes of him that he was said to have stated "that one would not be able to extract the white crowns (*écus blancs*) from patients unless one deceived them." He elsewhere terms him "un grand empoisonneur chymique." Patin's hate poisoned his mind to such an extent that when Guénault's daughter died in childbirth, her father having administered antimony to her during her illness, Patin actually writes "Guénault is a madman. By wickedness (*méchanceté*) he has poisoned his daughter."

Although a good friend of Patin's, Lamoignon did not employ him as his physician but had Guénault in that capacity. Patin writes Falconet, (May 10, 1661) that he has been unable to secure an interview with the premier president for a townsman of Falconet's, because Lamoignon is ill.

He is in the hands of Sieur Guénault, who has retarded his recovery in place of hastening it,

<sup>6</sup> Journée des Dupes, November 11, 1630, thus called because on that date the Queen Mother and Richelieu caused the downfall of the conspirators who had been duped into believing that they were strong enough to overthrow them.

having purged him too soon, which obliged them to have recourse to bleeding many times. They have begun now to purge him but he has a severe headache which prevents one talking of any business to him. I have promised your friend that when he has recovered I will go and see him, and sometime I will try to obtain something for him. Do not be astonished that I am not his physician, Guénault has been so for more than twenty-six years, for political reasons.

When Guénault died, Patin wrote Falconet (May 17, 1667) :

Today, in the morning, the 16th of May, M. Guénault died at St. Germain of an apoplexy. God did not permit that he should be saved by *vin émétique*, he, who in former times, has killed so many persons with this poison and with the *laudanum chymisticum*.

On Van Helmont the judgment passed by Patin in a letter to Spon, April 7, 1645, was:

He was a wicked, Flemish rascal, who died insane a few months ago. He never did anything of value. I have seen everything he wrote. This man only thought of one medicine, made up of chemical and empirical secrets. He wrote much against bloodletting, for the lack of which, however, he died in a frenzy.

In recent times the contributions of Van Helmont to medicine, especially to chemistry, rank much higher than those of Guy, or any of his contemporaries of the Faculté de Médecine of Paris. His investigations first directed attention to the fact that many of the processes of the living body were chemical and led to the chemistry of vital processes, and he discovered the chemical existence of gases, and their different natures, such as flammable and inflammable, noxious and innocuous, thereby opening up an entirely new field of chemical research.

Van Helmont who was born in 1577 and died in 1644, was before Franciscus de le Boë (1614-1672) the chief contemporary representative of the iatrochemical school, the founder of which was Paracelsus, consequently he was the living embodiment of evil to Patin's mind. Van Helmont's mystical theories of an archæus, or governing principal of animal life, with a special archæus

presiding over each region or organ of the body made no appeal to Patin's materialistic mind, and he very rightly had no patience with the sympathetic ointment or powder, in support of which Van Helmont wrote a treatise. This sympathetic ointment, or weapon salve, was one of the most curious delusions which has ever prevailed in the medical profession. Briefly, it consisted in the belief that wounds could be healed by dipping something, preferably the weapon with which the injury had been inflicted, in the blood or discharges from the wound, and then dressing this object with the ointment or salve, applying bandages to it while leaving the wound itself undressed. In other words it was a form of "absent treatment." These ointments were variously compounded. Paracelsus, to whom is usually ascribed the start of the idea, especially recommended one composed of moss from a human skull, human fat and blood, mummy,<sup>7</sup> oil of roses, bole armeniac, and linseed oil. Sir Kenelm Digby manufactured his sympathetic powder from a mixture of copper sulphate and other chemicals. When Patin hated once it was for good and all, and nothing which Van Helmont might do that was of worth could atone for his mysticism and chemistry. In justice to Patin it should be noted that most of Van Helmont's chemistry was but a dim foreshadowing of the discoveries of later days and it was so hidden in the jargon of mysticism in his writings that its significance is hard to find nowadays and must have been doubly so to his contemporaries.

Guy de la Brosse, who was physician in ordinary to Louis XIII, was a skillful and learned man who founded the Jardin des Plantes, procuring patent letters for its establishment and being named its intendant in 1626. Patin wrote describing his last illness, in a letter to Belin, September 4, 1641, "He had a flux of the belly from eating too many melons and drinking too

<sup>7</sup> Mummy was a resinous substance supposed to be obtained from mummies, but which Paré showed was generally made from all kinds of substitutes.

much wine. As to the last, it was not as much his fault as his custom." Patin tells how la Brosse took emetics, astringents and *eau-de-vie* but when bleeding was spoken of he said, "it was the remedy of sanguinary pedants and that he would rather die than be bled." "The devil will bleed him in the other world, as merits a rascal, an atheist, an impostor, a homicide, and a public executioner such as he was."

Triaire thinks possibly Guy's enmity was due to the fact that in founding the Jardin des Plantes this erudite naturalist took from the Faculté the privilege of teaching a very important branch of medicine.

Élie Beda des Fougerais, *premier médecin* to Louis XIV, who figures as Desfondrès in Molière's "l'Amour Médecin," was according to Patin (letter to Spon, August, 1650), not to be classed with honest men:

He is a chemist, an empiric, and gains all he can by effrontery and impudence, without seasoning his actions with any prudence. He promises to cure everybody. He makes crazy statements of what he can do and of knowing more than anyone else; that such and such an one knows not only how to bleed and purge, but that he possesses great secrets. . . . He was formerly a great giver of antimony but he did such poor business that he gave it up. . . . I do not like to talk nor think evil, but it is not through mischief that I speak thus of him, but in pure truth that you may know and recognize that this personage is a valet to the apothecaries and a grand cajoler of pretty women.

Patin writes of Beda's (the man's real name was Élie Beda, he added the des Fougerais of his own will) conversion to Catholicism to Spon (May 8, 1648) that it had "pleased God to touch the heart (I do not say the soul because I doubt if he has one), of our master Élie Beda . . . He goes henceforth to mass, carries a chaplet, and acts the bigot, as the others."

On Joseph Duchesne (1521-1609) more generally known by his Latinised name Quercetanus, Patin pours forth the following diatribe in a letter to Spon (January 8, 1650). Quercetanus had been physician

in ordinary to Henri IV and was an ardent follower of Paracelsus and an antimonialist.

The same year there died here a wicked rogue of a charlatan, who killed many during his life, and also after his death by the miserable writings which he left under his name which he had caused to be made by other physicians and chemists from here and there.

It was Josephus Quercetanus, who called himself at Paris the *Sieur de la Violette*. He was a great quack, a heavy drunkard, and one plainly ignorant, who knew nothing of Latin, whose first trade was that of surgeon's apprentice in Armagnac, which is a poor country. He passed at Paris, and chiefly at the Court, as a first-class physician, because he had learned something of chemistry in Germany.

Patin's hatred of the Arabic school of Medicine is fully explained in a letter to Spon, May 29, 1648, in which he writes that all that is good in their doctrine came from the Greeks. As to their remedies the school flourished at a time when they were in possession of better remedies than those known to Hippocrates but the Arabs made bad use of them.

The miserable Arabesque pharmacy was introduced and the rascally hot remedies, useless and superfluous, which are today in too much credit all over the world, and by a quantity of which the sick are villainously deceived. What good are all these compositions, all these sugared and honeyed alteratives, against which the wisest men in Europe have declared and raised themselves for a hundred years, as against an insupportable tyranny? . . . The great abuse of medicine is due to the multiplicity of useless remedies and the neglect of bloodletting. The Arabs are the cause of both. . . . We save more sick people with a good lancet and a pound of senna, than the Arabians can with all their syrups and opiates. We would do very wrong to quit the good remedies, which have come into use from the time of Hippocrates, for those which are less good or unknown to us. The method does not comprehend the remedy but the law and manner of using it rightly. It is the doctrine of indications which shows a physician as he really is, and for this we owe our entire obligation to the Greeks, who if they knew not senna and cassia it was not their fault, but their misfor-



tune. Also it was not by the Arabs that senna was discovered and made known to us, it was in use before them. Strong and violent remedies are yet good for some, but the science and method of the Greeks teaches us to use most successfully the benign and to keep away from those capable of harm, if we have not great need of them.

There is a brutality in Patin's references to those whom he hated, which is either a childish affectation or else an indecency. He writes to Spon, March 8, 1644, as follows:

M. Merlet, eight days before the death of M. Richer, made a false step in mounting (his mule or horse) by which he thought he had broken his leg, but he only had a slight dislocation of the *péroné* (ankle). The wags say that he would have done better if he had broken his neck. That will be for another time when it will please God to deliver our school of this terrible fool.

#### MOLIÈRE AND PATIN

Guy's great therapeutic standbys were purgation, with senna or manna, enemas, and venesection. Some of his letters remind one forcibly of the chorus of the bachelors of medicine in "Le Malade Imaginaire" of Molière,

Clysterium donare,  
Postea sagnare,  
Ensuita purgare.

A maxim of Patin's was "Marcher la saignée devant la purge."

Probably the ideas of most readers of the present concerning the medical profession in France during the seventeenth century are derived from Molière, wherefore it is well that we should stop for a moment to consider somewhat his attacks on them.

Three of his comedies are especially virulent in their attacks on the profession, "L'Amour Médecin," "Le Médecin Malgré Lui," and "Le Malade Imaginaire." In "L'Amour Médecin" he caricatures a consultation between four of the King's physicians, Daquin or Vallot under the name of Tomès, Élie Beda des Fougerais as Desfonandrès, Guénault as Macroton, and Esprit as Bahis, in such a way that his

audiences, largely composed of courtiers must have hugely appreciated the joke, and readily recognized the originals under the scanty disguise.

It is said that Boileau suggested to Molière the names under which certain well-known characteristics of the physicians were revealed. Thus, Desfonandrès means "slayer of men"; Bahis, indicated one who stammered; Macroton, a slow talker, as Guénault was known to be; Tomès, a bleeder, was applicable to Daquin, who was famous for his propensities in that direction. Elsewhere I have given Patin's own expressions concerning Guénault and des Fougerais. No ridicule which Molière could throw at them could equal the contempt which Patin, their colleague, heaped upon them. Patin writes to Falconet (September 22, 1665):

They performed a short time ago at Versailles a comedy about the physicians of the Court, in which they were treated with ridicule before the King who laughed at it very much. They put in the chief place the first five physicians, and above all our master Élie Beda, otherwise the Sieur des Fougerais, who is a man of great probity and very worthy of praise, if one believes that of which he would persuade us.

A few days later, September 25, 1665, Patin refers again to the performance of "l'Amour Médecin." "They are now performing at the Hotel de Bourgogne, 'l'Amour Médecin'. All Paris crowds there to see represented the physicians of the Court, chiefly Esprit and Guénault, with masks especially made. They mock those who kill people with impunity."

It is hardly necessary to point out that Patin confuses the name of the play. Patin does not state that he himself saw the play. He writes to Falconet (March 29, 1669) that all Paris is going to see "Tartufe." Réveillé-Parise thinks that the austerity of the manners of physicians rendered it customary for them not to go to the theater.

There is no doubt that the members of the Faculté de Médecine of Paris in the seventeenth century laid themselves open to the shafts of ridicule. It was a close

corporation holding tenaciously to ancient privileges, admitting to its membership only a chosen few each year and those chiefly drawn from the ranks of relatives and friends of those already members. In its very reaction against the poor tradition of Arabic medicine, the relic of mediæval barbarism, towards the pure Greek tradition, it did not escape from slavish subservience to the latter, and at a time when many were escaping from dogmatic adherence to ancient forms and rebelling against submission to authority simply because it was ancient, the Faculté tried in vain to stem the current. Molière combated hypocrisy and affectation wherever he found them and these two vices were preeminently displayed by members of the Faculté. Molière's health was poor and he had to have recourse frequently to medical aid during the later years of his life. He had as his physician one Mauvilain, whom he seems to have respected, and for whose son he besought the only favor he is known to have asked of the King, an ecclesiastical preferment. It is true that when Louis XIV asked him how he and Mauvilain got along with one another, he replied: "Sire, we talk together; he prescribes remedies for me; I do not take them; and I recover." Probably his frequent intercourse with physicians and their inability to cure him caused his satirical ridicule of them in his plays. He died from a pulmonary hemorrhage and most probably had tuberculosis for many years before his death. Molière's only reference to Patin is somewhat indirect. During the consultation in "l'Amour Médecin" the doctors, not talking at all about the patient whom they have been called to see, discuss the quarrel between Théophraste and Artémus, the latter undoubtedly being Patin, and the other his opponent Renaudot.

In many of his comedies besides the three mentioned above Molière indulges in sly hits at the medical profession. It is possible his ridicule did some good but there was no apparent great reformation in French

medicine until shortly after the Revolution when there arose the great school represented by such names as Bichat, Laënnec, Trousseau, Louis, Dupuytren, Desault, Larrey, etc. which during the first part of the eighteenth century gave to their country the foremost position in medical science in the world.<sup>8</sup>

Patin was not a frequenter of the "theater-ballet" at the court, and he makes no mention of his ever having gone to see a play or having read one himself. The theater-going population at Paris was largely confined to the nobility or to the frequenters of fairs. Mauvilain, Molière's physician, was a classmate of Robert Patin's. Guy Patin refers to him occasionally in his lists of evildoers who gave antimony, and whom he accused of being avaricious for fees.

Patin only mentions Corneille once when in a letter to Falconet, October 21, 1653, he tells him that "M. Corneille, the illustrious maker of comedies, is going to write an answer to Pellisson's 'Histoire de l'Academie'."

#### BLOODLETTING

Patin's letters are full of references to the beneficent effects obtained by copious bloodletting, applied to diseases of the most infinite variety. A few extracts will suffice to illustrate his views. He writes to Spon, April, 1645, thus:

// There is no remedy in the world which works as many miracles as bleeding. Our Parisians ordinarily take little exercise, drink and eat much, and become very plethoric. In this condition they are hardly ever relieved of whatever sickness befalls them if bloodletting does not proceed powerfully and copiously, nevertheless if the sickness is acute one does not see the effect as soon as from purgation. About the year 1633, M. Cousinot, who is today first physician to the King, was attacked by a rude and violent rheumatism, for which he was bled sixty-four times in eight months, by order of his father,

<sup>8</sup> Brander Matthews in *Appleton's Magazine*, August 8, 1874, and in *Scribner's Magazine*, January, 1910, has written most entertainingly of Molière and the medical profession.

and of M. Bouvard, his father-in-law. After having been bled so many times they commenced to purge him, by which he was much relieved, and in the end recovered. The idiots who do not understand our profession imagine that there is nothing to do but to purge, but they deceive themselves because if bleeding copiously had not preceded it, to repress the impetuosity of the vagabond humor, to empty the great vessels, and to chastise the intemperance of the liver which produced the serum, the purgation would have been useless. Another time I treated in this city a young gentleman of seven years, who fell into a pleurisy by overheating himself when playing tennis, having also received in the game a stroke on the foot on the right side, which provoked the most grand fluxion. His tutor hated bloodletting very much and I could only oppose to this hatred a good counsel, which was to call two of our ancients, M. Seguin and M. Cousinot. He was bled thirteen times and was cured in fifteen days, as if by a miracle, even the tutor was converted by it.

In the same letter he writes:

It is perfectly true that bleeding is a very powerful remedy in smallpox, especially if done early, but this disease is sometimes so insidious, and the lungs sometimes so involved that it is folly to promise relief from it. That is why prognosis is in this case so useful to the physician. It is my custom to say to mothers who generally have a great concern for the faces of their children, that it is necessary first to be assured of their life, and that I cannot answer for the outcome of this dangerous disease until after I have seen the children out in the street many times playing with other children.

Patin considered bleeding as the only therapeutic measure of any avail in apoplexy. He writes to Falconet (May 10, 1661): "This afternoon I gave a very good lecture in which I amply explained apoplexy, and belabored the apothecaries who would exhaust their shops on this malady, but in vain. We only cure it by prompt bleedings."

Patin again writes to Falconet (October 14, 1664) his views regarding the treatment of epilepsy. He begins by declaring his belief that there was no specific for it:

I believe that there are no anti-epileptic remedies. M. Seguin, Riolan, de la Vigne, and

Moreau, are of the same opinion. Those which Crollius and the race of chemists vaunt as such, are fictions or fables. I do not except mistletoe, the foot of the eland, the root of peony, nor other similar bagatelles. The cure of such a great disease depends on an exact regimen of life, with abstinence from women, wine, and all hot and vaporous foods; but bleeding and frequent purgation are necessary. These do not hurt the brain, and are not made with pills or powders. It is necessary, sometimes also to evacuate the pus which is in the mesentery, the lungs, the hollow part of the liver, or the uterus, and the fits will not cease until such humor is evacuated. Fernel was a great man who broke the ice on many points, but he lived too short a time to know and tell all. He only lived fifty-two years. Pearls are of no use in it (epilepsy) except to enrich the apothecary.

Speaking of the desperate illness of M. Merlet, Patin tells Belin "M. Merlet has been nearly at the gate, but he has not passed through the wicket." It is wonderful that he escaped because Patin tells us that he was extremely sick "of an inflammation of the lungs for which he was bled sixteen times in January. In a previous month, July, he was bled eighteen times for a malignant fever. Merlet was at that time sixty-six years old."

Patin was a "Brissoin," or disciple of Pierre Brissot (1478-1522) as one would naturally expect. Brissot brought into vogue "derivative" bleeding, that is bleeding from the side of the body on which the lesion was located, as taught by Hippocrates. To this was opposed the Arabian theory of "revulsive" bleeding, or drawing blood from the opposite side to that of the lesion. In support of this he writes to Belin, fils, March 14, 1649, after his father had had a paralytic stroke urging that he should bleed him from the unparalyzed arm, or possibly a little later from the palsied one. Brissot's theory was applied especially to bleeding in cases of pleurisy.

For the benefit of the lay reader it should be stated that in paralysis due to an apoplectic stroke or hemorrhage in the brain the paralysis occurs on the opposite side of the body.

Brissot's teaching at a time when the Arabian school was at the height of its power raised such a storm that he was banished from France by the Parlement of Paris. The echoes of the controversy still lingered in Patin's time.

#### SURGEONS AND BARBER-SURGEONS

To the barber-surgeons, Patin was more lenient than to the apothecaries because the barbers were more humble in their attitude toward the physicians. Patin writes to Belin (January 14, 1651):

As for the barber-surgeons, they are only received with our approbation and after examination in our presence, and they are only permitted to practice surgery not at all pharmacy, above all not to administer any purgative or narcotic except on the prescription of a physician.

"When each follows his *métier*, the cows are better watched." We have here very subservient (*souple*) surgeons. Bleeding makes them rich, but they know very well that they are in our hands and their gains also. They cannot admit candidates to their society (*Ils ne font point d'actes*) unless the dean of our Faculté is present, accompanied by two doctors who have the right to impose silence when they are extravagant in their questions, these three even have to sign the act of reception (of the candidate) otherwise he has not the right to open his shop. For the rest they love us as their patrons, they see how we have treated the apothecaries, and how we have nearly annihilated them, and that it would not be difficult for us to do the same thing to the surgeons, if they were not *souple* and did not rule themselves wisely towards us.

To Spon he writes (April 21, 1665):

I assure you that at Paris we hate the surgeons as much and perhaps more than the apothecaries, seeing that they are equally insolent, add to which they are companions of the country of *adieusias*, who promise marvels to poor people *quos impura Venus ut plurimum momordit*.

The history of the long quarrel between the physicians and surgeons of France has been accurately and thoroughly discussed by Malgaigne in the introduction to his edition of the works of Ambrose Paré.

In Patin's time there existed the three

classes of those who practiced the healing art; the physicians, the surgeons, and the barber-surgeons. The physicians, represented by the Faculté de Médecine had formerly had control over both the surgeons, whose organization was known as the Collège de Saint Côme, and the barbers who belonged to the society of the barber-surgeons.

In 1657, the barber-surgeons decided to amalgamate with the Surgeons of Saint Côme, frequently called surgeons of the long robe, because they wore a long robe similar to those in vogue with the physicians of the Faculté. This would have the effect of removing the barber-surgeons from the control of the Faculté and would strengthen the hands of the surgeons in their frequent contests with the latter. The surgeons had for centuries been ground between the two millstones, the Faculté, which would not permit them to prescribe and regarded them simply as mechanical assistants to be called in when they were needed; and the barber-surgeons who were constantly trespassing on the surgeons' field and had for many centuries done much more and better surgical work than the surgeons of the long robe. The latter treated abscesses and wounds by the application of plasters and ointments, but most of the operative work was done by the barber-surgeons, from whose ranks the incisors, bone-setters, and lithotomists were drawn. Thus Franco, the Colots, and Paré himself were barber-surgeons, and there is no name of note found among the surgeons of Saint Côme over a period of some hundreds of years. Paré was only admitted to their ranks through the exertion of the King's influence after he had become famous, and in the face of great opposition on the part of many of the members.

Patin as might be expected was furious at the prospect of this union. He writes to Spon (July 13, 1657):

We are now at law with our barber-surgeons who wish to unite with the surgeons of Saint Côme, our ancient enemies. *Cosmiani illi*

(those of Saint Côme) are miserable rascals, nearly all tooth-pullers and very ignorant, who have attached the barber-surgeons to their string, by making them share their halls and their pretended privileges, among others holding their examinations in their hall, wearing a long black robe and a square bonnet, and they demand that we be present at these functions, I mean our Dean, who goes there accompanied by two doctors. . . . They talk of (giving) degrees of bachelors, of licentiates and other such ceremonies and vanities, altogether indecent for such booted lackeys. The cause will be plead in a month and I believe that all the audacious designs of this superb mob will be bridled and regulated, and meanwhile our Dean will not be present at any of their functions. Are these surgeons of Saint Côme not agreeable? They had permission from the king about three hundred years ago by which they were given license to assemble together. They claim from this word licence that they were permitted to make licentiates in surgery, which however they have never undertaken to do heretofore. . . . And they would make for us, doctors *pas latins* (ignorant of Latin), who would not know even how to read nor write. We do not pretend to prevent their being surgeons of Saint Côme, nor that the others might unite with them, we only would have a company of barber-suregons, as we have had until now, which would be dependent on our Faculté, which would take every year an oath of fidelity in our schools at the hands of our Dean, *In magnis comitatis Facultatis*, and pay us every year a certain sum for the rights which we have in their functions. But we do not wish robes, bonnets, licenses, nor any similar abuses. . . . They are already sufficiently vainglorious and stupid without furnishing themselves with any such apparatus.

The union was brought about in spite of the Faculté's opposition, to the great benefit of French surgery.

#### THE APOTHECARIES

A very famous victory was won by Patin in 1647, over those whom he called "mes chers ennemis," the apothecaries of Paris. The apothecaries had sided with Renaudot in his memorable attack on the Faculté de Médecine because of the condemnation by it of the use of antimony and its attitude

against the Arabian polypharmacy which was such a great source of revenue to the pharmacists. Patin was especially conspicuous in the Faculté and both in speech and writing lost no opportunity to belabor the apothecaries for what he called their swindling and avariciousness. The new pharmacopœia published by the Faculté de Médecine was calculated to hurt the apothecaries very much as it had a distinct tendency to lessen the complexity of compounds and to encourage the use of the simpler preparations. Patin wrote a thesis "Estne longæ ac jucundæ vitæ trita certaque parens sobrietas." This may be briefly summed up as "On Sobriety" and he caused it to be sustained by one of his scholars, Montigay, March 14, 1647. In it he poured out a long diatribe against the apothecaries, their methods and their preparations. The apothecaries brought an action in the court of the Parlement of Paris against Patin. Patin in a letter to Falconet, April 10, 1647,<sup>9</sup> tells how, acting as his own lawyer he discoursed for an entire hour, at the end of which the Court gave judgment in his favor and the apothecaries were driven from the hall, amidst the jeering and hooting of the audience, which according to Patin amounted to six thousand persons. His description is so picturesque or Patinesque, that I transcribe it in full.

For my dear enemies, the apothecaries of Paris, complained of my last thesis to our Faculté which mocked them. They appealed against it to the Parlement, where their advocate having been heard, I myself responded immediately (*sur le champ*) and having discoursed an entire hour with a very large and very favorable audience (as I had five years ago against the Gazetteer), the poor devils were condemned,

<sup>9</sup> Andre Falconet (1612-1691) was a native of Roanne. He received his doctor's degree at Montpellier and practiced medicine at Lyon. He is first mentioned by Patin in a letter to Spon, April 21, 1643, wherein he asks Spon for information about a "M. Falconet who has written on scurvy" referring to a work by Falconet entitled "Moyens Préservatif pour le Guérison du Scorbut," published at Lyon in 1642.

hooted, mocked, and confounded by all the court, and by six thousand persons, who were ravished to see them refuted and overthrown as I had done. I talked against their bezoar, their confection of alkermes, their theriac, and their compositions. I made them see that *organa pharmaciæ erant organa pallacæ*, and made them acknowledge it to all my auditors. The poor devils of pharmacists were put to such confusion that they did not know where to hide themselves. All the city knew it and likewise mocked them, so much that honor came to me from all sides, the same as from our Faculté which rendered me thanks because I had so well defended myself from the annoyance (*pince*) of these good men, and in such a way that it went to the honor of our company. The judges even have praised me. *Voilà, monsieur, l'histoire des pharmaciens.*

Paris really was a hotbed where all kinds of charlatany flourished in Patin's time as is apt to be the case in any great city, and there was much cause for complaint. He writes to Spon (April 21, 1655):

There arrive here a thousand misfortunes because of the too great credulity of the sick, who address themselves to the surgeon's apprentices, apothecaries, charlatans, operators and other ignorant animals eager for gain. Note that the greater part of these strollers are Provençals, Languedociens, and Gascons, or from the neighboring provinces. This only occurs here because of the lack of police and negligence of our judges.

Patin was not only a vehement, not to say venomous, enemy when aroused, but also a very difficult one to combat, because of the careful preparations he made for his various combats and the skill with which he armed himself. Thus he writes to Belin, August, 18, 1647, that he is going to prepare for a future possible attack by the apothecaries, a work in which he will "refute the bezoar, the cordial waters, the unicorn's horns, theriac, the confections of hyacinth and alkermes, the precious fragments and other arabesque bagatelles," but that it will require three or four years of leisure to complete the book. In the two speeches which he delivered at the Renaudot trial and in his own defense against the apothecaries,

his audiences were overpowered by his display of learning and the scope of the arguments with which he supported the sharp and witty invectives which he launched against his foes. Patin would surely have pleased Dr. Johnson as a "good hater." He certainly had the courage of his convictions. Writing to Belin, January 18, 1633, in speaking of the warfare the physicians were waging against the apothecaries for their own avarice and extortion, Patin says:

In the majority of the grand houses there are no longer apothecaries, it is a man or a chambermaid who makes and gives the enemas, and the medicines also, which we have reduced to the laxative juice of prunes, or bouillon and senna with juice of citron, or orange, or verjuice, or a laxative ptisan of cassia and senna, according to the taste of the patient.

In a long letter to Spon (June 18, 1649) Patin bursts forth against the monks whom he hates almost as bitterly as the Jesuits. After a long tirade he writes:

But leave that pest of religion to pass to that of medicine, I mean the apothecaries. You (the physicians of Troyes) have made an agreement with them; they are not worthy to enter into a composition with their masters, upon whom they should depend absolutely. If you wish to prevent them from undertaking anything or trespassing on you it is only necessary to make them remember the *Médecin Charitable*, with which, though it only costs a sol or two, we have ruined the apothecaries of Paris. Make them understand that there are at the grocers, cassia, senna, rhubarb, sirup of roses and with these remedies we can do without them, and have rendered them so ridiculous, that no one wishes to see them at their houses, and so they have more leisure than they desire to stay in their shops. There is no more, thank God, any question of bezoar, or cordial waters in smallpox, or julep cordials, or pearls, in any disease whatever. The people are not deceived by these bagatelles or by any others. The rich do not avail themselves of them any more and hold themselves under obligation to many ancients of our Faculté for delivering them from this tyranny. These messieurs, our ancients were M. Marescot;

his son-in-law, Simon Piètre; Jean Duret, son of Louis; the two Cousinots; Nicholas Piètre; Jean Hautin; M. Bouvard du Chemin; Brayer; de la Vigne; Merlet; Michel Seguin; Baralis; Alain; R. Moreau; Boujonier; Charpentier; de Launay; Guillemeau; and many others who introduced into the families at Paris an easy and familiar medical practice which has delivered them from the tyranny of these arabesque cooks.<sup>10</sup> . . . In such sort that the apothecaries at present scarcely find themselves in demand except for strangers lodging in furnished chambers.

Writing to Spon, March 10, 1648, Patin tells him that Guillemeau had written a thesis in which he attacked the apothecaries and the Arabian pharmacy but that he had not had the courage to print it without retrenching many of the strongest parts of his arguments. Guy says "everybody is not equally brave in this country, those who think themselves wise here, worship the golden calf and and revere fortune of the wicked." Some one had said to him that "everyone was not as fortunately brave as he, and that although what he had written was right, nevertheless there was no need to say or write it." Guy pours out his contempt on such cowardice. Nevertheless one cannot help the feeling at times, that part of his bitterness, especially against the physicians who held a great place at Court, was sour grapes.

#### SIDE LIGHTS ON PATIN'S CLIENTELE

In a letter to Belin,<sup>11</sup> he says: "Most of the Court physicians are ignorant or charlatans, and very often both," and again, "at least you can go and see M. Vautier, chief physician to the King, but do not talk to him of me; our dogs do not run together. I am not, nor do I wish to be an antimonial doctor, for I know too well that antimony is a poison." Some of those

<sup>10</sup> Figaro, Barber of Seville, Act 1, Sc. iv, speaking of his functions in the house of Bartholo says he is "his barber, his surgeon, his apothecary; there is not given in his house a stroke of the razor, the lancet, or the piston except by the hand of your servant."

<sup>11</sup> March 14, 1657.

whom he judged most harshly, were certainly held in great esteem, not only by their patients but by many of their professional colleagues. Guy is not above letting his correspondents know that he has some aristocratic patients on his list. Thus he concludes a long letter to Spon, May 29, 1648, "But here is the hour that a coach should come to take me, drawn by six good horses, to see, at nine leagues from here, M. de Marillac, Master of Requests, who is sick there with an attack of gout." In a letter to the younger Belin, June 19, 1649, Guy says he is going against his will to Fontainebleau to see the son of a *tresorier de l'extraordinaire des guerres* who is very sick, "the father and mother take me there in their coach." The physicians of the seventeenth century made their rounds on horseback or riding a mule. There were stone steps placed at the *ecole de médecine* to facilitate their mounting and getting off.

Pic<sup>12</sup> quotes from Patin's contemporary Vigneul de Marville the following sketch of Guy which is contained in his "Mélanges d'Histoire et de Littérature."

Guy Patin was satiric from his head to his feet. His hat, collar, cloak, his doublet, stockings and boots, all bid defiance to the world and went to law with vanity. He had in his countenance, the air of Cicero and in his *esprit*, the character of Rabelais. His great memory furnished him always with subjects for conversation and he talked much. He was hardy, bold, inconsiderate, simple and naïve in his expressions.

In spite of some repellent characteristics Patin seems to have had a large practice chiefly among the rich bourgeoisie, the officials of the Parlement of Paris, lawyers, and merchants. His professional standing was good with his colleagues in spite of his many enmities, because we know that he attended many of them, Riolan, Moreau, etc. and that he was frequently called in consultation by them.

A sidelight on the devious ways by which some physicians sought to obtain practice in Guy's time is afforded in a letter written

<sup>12</sup> Guy Patin.

by him to Spon, January 7, 1661. The latter had referred a patient who was at Paris to Patin, but the patient had fallen instead into the hands of a physician named Lienard. Patin says it was probably through the agency of an inn keeper.

Because he (Lienard) is in relation with all the hosts in his quarter and I do not doubt it if his inn was in the Rue des Trois Mores or Aubry-le-Boucher, because I have known this fact for a long time . . . God be praised of all, I do not lack patients, nor wish for them. I thank you nevertheless for your good affection. I ask you only if he is still at Lyon, without seeming to do anything, to learn from him the name of the street and sign of his inn, because I think I have divined it.

Lienard had evidently insinuated to the patient that if he fell in Patin's hands he would be bled to excess, because the patient told Spon that he had heard of this failing of Patin's. The latter says this was a cowardly trick of Lienard's similar to many others that he had done.

Patin gives a curious instance of his physiological views in the following statement to Falconet, October 26, 1658:

Inflammation of the lung is always fatal to those who have red hair. The late M. de la Vigne, one of the physicians of our Faculté was very red. I called him one day in consultation on a secretary of the king's named Collier who was seventy-five years old, and very redheaded. He was ill with an inflammation of the lung, which I predicted would be fatal. M. de la Vigne asked me where I had learned this prognostic of the redheaded? I answered him that I had always remarked it as very true besides which I had heard it said by M. Nicolas Piètre, who had learned it from his brother, the great Simon Piètre and the reason was that the redheaded abounded in bitter and malign serosity.

Patin certainly at times lays himself open to the reproach that those who live in glass houses should not throw stones. He retails with relish the foibles and weaknesses of his fellowmen, and consequently exposes himself to the exposure of his own. Even the dead did not escape his malicious pen. Thus he writes to Spon, January 20, 1649:

We have freshly lost one of our companions, a

resolute and well-intentioned man named M. Nic Heliot, aged forty-seven years. He died of hydropsy of the lungs, after having languished for two months. He had invited in his last will, all the Faculté, as many doctors as possible to be present at his interment. To this effect he had ordained that each doctor who came there in a red robe should have two quarter crowns for his presence, and half that to those who came in a black robe with the square bonnet. He was interred with very great ceremony and pomp, accompanied by sixty doctors, of whom there were forty in red robes and twenty in black. Nevertheless the Faculté decreed that they should not take his money, and that the said sum of one hundred pounds which would have been necessary to carry out his last wishes, should be left and returned to his widow. He died without children. His brother is an *échevin* of the city of Paris. He was of a good family, very rich, but he loved extremely the ceremonies and displays that make a noise. God guard from harm those who are of an altogether different sentiment. For me I am content and much desire that they should bury me at four o'clock in the morning, or at nine o'clock in the evening, and that this *manège*, which seems only invented for the gain of priests and bell ringers, or for the solace of the living, *fiat et pereat sine sonitu*, but I hope this may not arrive too soon.

#### RICHELIEU AND MAZARIN

Years after Richelieu's death Patin continued to refer to him with the greatest animosity. Writing to Belin, fils, January 14, 1651, he speaks of a case in which a surgeon had given a narcotic pill containing opium to a patient, with a fatal result, and adds that possibly it was the same kind of pill which was given to the great Cardinal shortly before his death, which Patin thought had accelerated his end and he concludes, "Would to God he had given it to him twenty years sooner." Patin never admits that any of Richelieu's great policies were actuated by a desire to aggrandize France or the King, although it is now conceded that he was a great man who, though frequently gratifying his personal ambition, nevertheless in the main served the interests of his King and country.



His hatred of Richelieu was augmented by the fact that the Cardinal had caused the execution of de Thou, a great friend of Patin's, for treason in 1644. De Thou was the son of the famous French historian. The correspondence contains many references to the execution of young de Thou years after the event. Writing to Spon, September 12, 1664, Patin says: "It is twenty-two years ago that Armand, Cardinal de Richelieu, *Ministre enragé* had beheaded in your city my good and dear friend, M. de Thou." His hatred for Cardinal Mazarin, the inheritor of Richelieu's power was fully as bitter without any particular personal reason for it. One of his favorite epithets for him is "the Pantaloon in a long robe" or "the Pantaloon with a red hat." Writing to Garnier, a physician of Lyon, June 18, 1649, he says of Mazarin that it is the "Pantaloon in a long robe" who "is the cause of all our ills, and of the ruin of France."

He accuses Mazarin of finding in the wars into which he plunged France the *pierre philosophale*, and complains many times of the devastation and pillage to which the country was subjected not only by the enemies' troops but by the irregularities committed by the French troops in their own country. In a letter to Spon, May 14, 1649, he complains that his country house has been robbed by the soldiers of Mazarin, and he raises his voice many times in bitter complaints against the policies of the Cardinal. Although Mazarin's apologists point to the successful results of his diplomacy and show how the wars in which he involved France added to her territories and increased her prestige, nevertheless those who have studied the history of the period in which he controlled the destinies of the country are struck with his disregard for the sufferings of the French people and with the selfishness and avarice which dominated his actions, and must allow that there is much justice in Patin's allegations. Undoubtedly France was never in apparently greater position and prosperity than

during the reign of the *Roi Soleil*, but beneath the surface of all this splendor was the misery and woe of the common people, paving the way for the events of one hundred years later. The arrogance and pride of the King of France led to the estrangement and hatred of France by other countries, and to the numerous wars from which France was to suffer throughout the eighteenth century and the ruinous financial policy which terminated in the overthrow of French royalty.

Patin's letters written during 1648-49 when the people of Paris were in revolt against the arbitrary government of Mazarin show that he sympathized with the people although he took no active part in the revolt. He retails with joy every piece of news that he picks up which would put Mazarin in a disadvantageous light. After the King, Queen Mother and the Cardinal had re-entered Paris he writes Belin, fils, that a printer named Morlet had been arrested for printing some scurrilous verses about the Queen Mother and Mazarin. It was a matter of current scandalous rumor that Anne of Austria and Mazarin maintained much more intimate relations than those which are customary between a regent and a chief minister of state. Patin says the printer was taken to the Châtelet and on the same day condemned to be hung. He appealed to a higher court which confirmed the sentence. When he was being conveyed to his doom the people attacked the escort. The archers who constituted his guards fled before the savage mob, as did the executioner who rode in the cart with the prisoner. The latter escaped.

Patin tells Belin (August 27, 1649) that the Queen Mother and Mazarin were greatly afraid of what might happen to them when they returned to Paris after having had to flee from the city and then having laid siege to it—"The executioner of an Italian was so afraid for his skin." He adds that there need be no more fear of his adding any new taxes or creating new offices.

Mazarin and his agents repressed with the greatest brutality every manifestation of the sentiment of the public towards him. The animosity of the people found its chief vent in the so-called "Mazarinades," pamphlets and verses secretly printed and circulated from hand to hand in which the Cardinal was held up to ridicule and hatred in the most virulent manner. Patin writes to Spon, July 13, 1649, of a widow, named Meusnier, and her two sons who were arrested for printing some of these documents. The elder son was sentenced to be hanged, the mother was to witness the execution of her son then to be publicly whipped, and afterwards expelled from the kingdom and the younger son was to be sent to the galleys.

When Mazarin died he left a large legacy to found the Collège de la Quatre Nations, also bequeathing to France his magnificent library and the Palais Royal to the King. But this posthumous generosity did not lessen Patin's animosity. He writes Falconet (March 9, 1661):

They talk no more of the death of Mazarin. He has passed; he has folded his baggage; he is indeed the eminent personnage. But they do talk of his will, of his *écus*, and they are in difficulty as to who will succeed to his political and financial all-powerfulness. They say he has left two million to build a great college, for the instruction of poor gentlemen of four nations. One, I think, like the University at Paris or at Nevers, and that he is to be buried in the church of this college as its founder. Others say that he will be buried in Saint Denis, in France, being the Abbé. But it little imports where they bury him, provided that he steals and tyrannizes no more over the people, as he did for too long a time. *Bon Dieu!* but their patience has been great with this tyrant. They say the college is to be built opposite the Louvre on the bank of the Seine.<sup>13</sup> They say that the Queen Mother is not grieved at the death of Mazarin nor is the duc d'Anjou, and that the King has quarrelled with them about it. . . . The four

nations of which I have spoken above are the Spaniards, Italians, Germans and the English. He employs the money which he has stolen in France for foreigners, not for the French.

#### SOCIAL LIFE IN FRANCE IN THE SEVENTEENTH CENTURY.

It is very hard for the modern mind to comprehend the curious *mélange* presented by the manners, customs, religion, superstition, erudition and ignorance, in the social life of the seventeenth century in France. Until Louis XIV attained his majority all political power was in the hands first of Richelieu, afterwards of Mazarin, both brilliant, crafty, unscrupulous ecclesiastics, who balked at no means to gratify their ambitious ends. Their rule was necessarily despotic. There yet lingered in France remains of the old feudal spirit, not yet entirely subdued to the idea of the concentration of power in the hands of a monarch. During the minorities of both Louis XIII and Louis XIV some of the great princes of France tried their best to overthrow the power held by Marie de Médicis as regent for her son, or by Anne of Austria during the minority of hers. All these attempts proved futile against the craft and ability of the two cardinals on whom the Queens successively relied, but the first half of the century is marked by a succession of treasons, stratagems, and wars, only finally to end in the despotism of Louis XIV. The great Condé was for sometime in arms against France, fighting with Spanish troops against his country. The social life as detailed in the memoirs and letters of the time was marked by bloodshed and a looseness of morals which is almost beyond belief. Duels were so frequent and so fatal that the sternest edicts were issued against them. Every great man had a horde of parasites who would willingly commit murder or any other crime at his bidding. According to Patin even Cardinal Mazarin was guilty of having his enemies attacked by bands in his employ. He relates to Spon (November 4, 1650), that some days before

<sup>13</sup> It was erected there in the buildings now, 1920, occupied by the Bibliothèque Mazarin and the Institut de France.

a band of thirty armed men had attacked the coach of M. le duc de Beaufort in the Rue St. Honoré. Fortunately for the latter he was not in it at the time and thus escaped the death which befell several of his servants. Patin implies that the assassins were in the employ of the Cardinal. The great nobles such as Condé, Conti, Gaston d'Orléans, all had their "men" and indulged in little private wars of their own, occasionally combining with one another against the royal authority.

Many of the great ladies of the court indulged in the most shameless intrigues. Mazarin was accused of being the lover of Marie de Médicis, and by many of being the father of Louis XIV. Marguerite de Valois and the duchesse de Navarre are said to have had the heads of their respective lovers, Coconas and La Mole embalmed after they had been beheaded for treason and to have kept these gruesome relics as trophies of their affection. The court was full of bastards of high lineage for whom provision was made at the public expense by the gift of political or ecclesiastic benefices.

Murders were so frequent among the nobility that they only excited momentary interest. The wicked and eccentric Queen Christine of Sweden after her abdication while staying at Fontainebleau caused one of her household named Monaldeschi to be murdered in the hall of the palace. For a short time the court was horrified but a few weeks later she was in Paris, fêted and entertained as if nothing had happened. The Marquis de Charton was murdered as he came out from mass at the church of the Augustines. Patin tells with some gusto how one of his murderers was beheaded and the other broken on the wheel.

#### ABORTION

Abortion was an antisocial crime which prevailed to a terrible extent in the highest social circles in France during the Seventeenth century. Bayle<sup>14</sup> devotes one of his

most interesting marginalia to a discussion of the question. In spite of civil and ecclesiastical decrees and proclamations and of the special abhorrence with which the crime was regarded by the Church of Rome, the *grandes dames* of the time made light of the earthly and spiritual terrors which were held up to them and persistently resorted to crime to conceal their shame. Bayle uses this to support the thesis that the fear of worldly shame is a stronger sentiment than that of religion. There was a large class of men and women who practiced abortion as a specialty, the latter drawn chiefly from the ranks of the midwives. It was estimated that over six hundred cases were known to have occurred, the greater part among women of high social position, in less than one year in Paris alone. Patin writes to Falconet (June 22, 1660) of a very notorious case of this kind: Mademoiselle de Guerchi had been seduced by the duc de Vitry.

They make a great clamor here about the death of Mademoiselle de Guerchi. They had imprisoned the midwife at the Châtelet, but she has been taken from there to the conciergerie by order of the Court. The curé of Saint Eustache has refused sepulture to the body of the lady. They say that it was carried to the hotel de Condé, and was there put in quicklime in order to consume it soon, so that it could not be identified if anyone came to see it. The midwife has defended herself well up to now. . . . But I believe the question will be put to her. The vicars-general and the plenipotentiaries went to complain to the Premier President that in a year six hundred women, by actual count, have confessed to killing and destroying their fruit.

The midwife of Mademoiselle de Guerchi, a woman named Constantin admitted that the lady had died in her house but denied having given her any abortifacient. She said she was told that the patient had taken some medicine, but that when she first saw her she was so very ill that there was nothing to do but to try and alleviate her sufferings. The Premier President and the *lieutenant criminel* consulted Patin about the case. A surgeon, named Le Large, was accused of

<sup>14</sup> Dictionnaire Biographique. Art., Guy Patin.

complicity, but managed to exculpate himself though Patin thought his excuses very lame. The midwife was found guilty and hung at the Croix du Trahoir, as Guy says *en belle compagnie*.

The midwives were under regulation in the sixteenth century, and their moral character as well as their professional qualifications were carefully looked into. Patin writes to Falconet, September 14, 1660, that he had been appointed by the Premier President to hold an examination for the appointment of a midwife to the Hôtel-Dieu, not only to serve the patients there but also to teach her profession in its wards. Thus the vast clinical material in the enormous hospital was utilized for teaching purposes at a time when clinical teaching was almost unknown elsewhere. Blondel, the Dean of the Faculté de Médecine, officiated with Patin at the examination, and a short time afterwards they held another examination for the purpose of choosing a lithotomist to the Hôtel-Dieu.

The clergy were as depraved as their flocks. Their charges were openly bought and sold, and those who had enough money and influence would accumulate a number of benefices which they shamelessly neglected except for the collection of the incomes due from them. The lives of many of the most prominent ecclesiastics were shockingly immoral and fully justify the many aspersions which Patin casts upon what he sarcastically terms the sacred institution of celibacy. The Jesuits though not so openly immoral in their lives were ambitious and constantly mingling in political affairs. The one bright spot in the religious life of the time was afforded by the followers of Jansénius, the Port Royalists, and they were looked upon with suspicion and hatred by the authorities of the Roman Catholic Church because of their alleged heterodoxy but especially because of their open reprobation of the disorderly lives of their fellow clergy and the earnest efforts which they made to purify the church. To the non-medical student of the times, Patin's letters

were full of interest because of their constant references to current events and to the great personages who figured in them.

#### LOUIS XIV AND MEDICINE

Garrison<sup>15</sup> directs attention to three episodes in the life of Louis XIV which had a great effect on the medical profession in France. In 1657 the King had an attack of what was probably typhoid fever. His recovery was attributed by many to the antimony which was administered to him by his physicians. The result was a great increase in the vogue of antimony so much so that a few years later it was restored to the official pharmacopœia. It is needless to say that Patin did not agree in this opinion. In his correspondence he refers in a number of letters to the King's illness. He had been taken ill while with the army and was conveyed from the camp in Flanders to Calais. From contemporary accounts there is but little doubt that his illness was typhoid fever, although of course, that name was not given at that time. He was very sick and consternation prevailed throughout France. Prayers were offered in all the churches, and Valot, Guénault, and Daquin, were in constant attendance at his bedside. "Here is a powerful King of France in good hands! Would you not say that charlatans are only suffered and tolerated to maltreat princes!" The King recovered, and Patin writes Spon that he has received an account of his illness from one who was with him.

I assure you that the King took only one third of an ounce of *vin émétique*, because the ounce had been put in three ounces of infusion of cassia and senna, and inasmuch as the first dose operated too much, he did not take the two others, but it was necessary to bleed him, finding him much worse and he was also bled many times since. So that the King does not owe his recovery at all to this deathbearing (*mortifere*) remedy. If the King had died one would never cease to reproach them for having given poison to the King, and they put themselves in great danger of such a reproach.

<sup>15</sup> Introduction to the "History of Medicine."

In spite of Patin's judgment the great majority of his subjects attributed the King's recovery to the "antimonialists" and thought that their sovereign remedy was the chief factor in the happy result. The case certainly redounded to their credit and greatly increased their reputation.

With the other two medical episodes in the reign of Louis XIV, Patin's correspondence has no connection, but they are of so much interest that I will briefly mention them. In 1663 when Louis XIV's mistress, Louise de la Vallière, was confined she was attended by Boucher, a man, a fact which had an immense influence in furthering the cause of male midwifery. It is said that Louis XIV watched the proceedings from the concealment of some curtains. In 1686 the King suffered from an anal fistula of which he was cured by an operation which was performed by the surgeon, Félix. The happy result brought about an immediate change in the status of the French surgeons, the King interesting himself in improving it. It may be recalled as an instance of courtly servility that many of the courtiers, although not suffering from any trouble of a similar nature insisted on submitting themselves to a like operation in order to show their submissive devotion to their royal master, and that some who had not sufficient nerve actually to subject themselves to the dangers and discomforts of an operation pretended to have done so and had dressings ostentatiously applied to their anal region in order to deceive the public.

#### PARIS AND THE COURT

Patin was born in 1601, he was therefore a boy of eight when Henri IV was assassinated by the monk, Ravallac, at the instigation of the Jesuits, and his hatred of the monks and Jesuits can be traced to the early remembrance of the horror with which the right-thinking people of France were inspired by it, and to the early influence of the terror under which the Leaguers held France during the last quarter of the six-

teenth century. He came to Paris as a young man and lived there until his death in 1672, never leaving the city except for a few very short journeys. Although not one of those courtly physicians who held lucrative positions at Court about the person of the King or some of the great nobles, the "Letters" give glimpses of the ailments from which these grand people suffered and he retails much gossip of their doings and reflects the current opinions about them. The death of Richelieu, closely followed by that of Louis XIII in 1643, was a matter of vital interest to so zealous a guardian of the privileges of the Faculté de Médecine, and the great hopes which centered on Louis XIV, were shared by him in common with all Frenchmen of the time. The disorders incident to the Fronde, that very disturbing family quarrel, figure at length in his pages, interspersed with dissertations on the newest books, or recent acquisitions of fine editions of old ones for his library. We would not expect, nor do we find him taking any active part in the stirring events which kept Paris in a turmoil throughout his life. He writes of them as an interested spectator, manifesting considerable partisanship, in the expression of his views but not precipitating himself into the vortex. The longest letter of Patin which we possess is one written to Spon, bearing dates on different days through January, February and March, 1649, in which he relates the events in the warfare between the Parlement of Paris, and the party of the Queen Mother and Mazarin, whom he hated as much as he had his predecessor Richelieu. He writes with the greatest freedom of all the great personages who were mixed in it, and particularly emphasizes the love of the Queen Mother, Anne of Austria, for the Cardinal. To the student of the epoch the letter is invaluable for its vivid word pictures and the excellent summary it presents of the views of the people of Paris, and their Parlement in their memorable effort to overthrow the tyranny of the Cardinal and his royal mistress. It

will be remembered that the Queen Mother acting as regent for her son, Louis XIV, then a mere boy had ordered the arrest of Blancmesnil and Broussel, two of the most respected members of the Parlement, and especially respected for the stand they took in opposition to Mazarin. At the news of their arrest the citizens rose *en masse*: The Queen Mother, the young King, and Mazarin fled to St. Germain, and surrounding the city with troops tried to reduce the rebellious populace to their authority. The Royal party patched up a reconciliation between themselves and their former declared enemy, the prince de Condé, and he was given command of the royal troops. The prince de Conti, Elboeuf and de Longueville, were the chief leaders of the people's party.

The people suspected, not without reason, that those of the nobility who acted as their partisans and by virtue of their rank and military experience commanded them in their conflict with the regular troops also served the Queen Mother and Mazarin. De Longueville left Paris on an expedition into Normandy to raise troops and to procure provisions. He left with the Parisians, as hostages, his wife and eldest son. Patin tells how during his absence Madame de Longueville gave birth to another son, who was appropriately christened Charles Paris de Longueville, comte de Saint Paul, his godparents being the provost of the merchants, the president of the Parlement, and four aldermen of the city of Paris. The baby grew up and Madame de Sévigné describes his death in 1772, when he was killed on the banks of the Rhine as Louis XIV's army was entering Germany.

The mistrust of the people was justified by the discovery that a number of persons of high position who had remained in Paris were acting as spies and conveying information to the Mazarinists, as those who surrounded the young King were termed by the Frondeurs. Apropos of these spies Patin writes to Spon (February 20, 1649): "All these miserable hangdogs, men of

their quality and dignity make themselves spies for a foreigner, a trickster, a comedian; sell and betray their country and take the part of an Italian who is only good to be chased from it." Patin says that if Mazarin was compelled to flee from France he would not be able to go to Rome because the Pope was Pamphilio, and Mazarin had caused the murder of a nephew of the latter's, which the uncle would promptly avenge. If he fled to Venice, where he was said to have accumulated money and goods in preparation for a rainy day, the Pope would deprive him of his cardinalate and perhaps have him assassinated. Patin says that those who know him well think he would do better to go to Turkey, have himself circumcised, and trust to the mercy of the Grand Turk and his mufti rather than to that of the Pope, Cardinal Pamphilio, or Cardinal Pancirol, another prelate who had great influence with the Pope and was an avowed enemy of Mazarin. Later when the Court was at Saint Germain because of the rebellious attitude of the people, Patin says that many would like to march on Saint Germain, bring the King and his Mother back to Paris, and execute the Cardinal on the Place de la Grève:

For an example to posterity, and to teach Italians not to come here and place themselves so easily at Court, to the desolation and total ruin of a flourishing kingdom, as the Marquis d'Ancre wished to do in other times, but in the end made a bad bargain of it, together with his wife and his followers. Please God for the welfare of France that it was likewise with Mazarin. Helas! but we would be fortunate.

The so-called war was conducted with but little spirit by the military leaders on either side. The great Turenne lent his support to the Parlement side but took no very great part in the affair. There were many skirmishes but no real battles, and food seems to have been brought into Paris in sufficient quantities to prevent any real distress. Patin writes that he has "thank God! Flour, bread, and wheat sufficient for more than a month for me and my family,

with wine, money, and provisions for a much longer time, and though I am in a blockaded city, half besieged, I have no need nor want." Finally a peace was concluded, which although it gave temporary satisfaction to the people yielded them no permanent advantages. Patin's letter intermixes with his account of these events much bibliographic gossip and medical news.

Patin describes to Spon, August 20, 1649, most graphically the return of the Court to Paris, and the reconciliation that ensued.

Finally the Queen Mother has returned to Paris bringing with her the King, at the solicitation of the two princes of the blood (duc d'Anjou and the duc d'Orléans), although she had no desire to do so, and Mazarin even less. He (the King) arrived here Friday, the 18th of this month, at eight o'clock in the evening, in a great coach which was very full. Among those with him in it were M. le duc d'Anjou, M. le duc d'Orléans, M. le prince de Condé, and Mazarin, who was so ashamed that he hid himself so that one could scarcely see him. There were also the Queen Mother, Madame la duchesse d'Orléans, Mademoiselle, and Madam, la princesse de Condé, *la douairière*, and the maréchal de Villeroi. Many of the city companies marched in advance. They entered by the Rue Saint-Denis, went the length of the street until beyond the (Fountain of the) Innocents, then entered the Rue de la Ferronnerie (in which the late King Henri iv was killed), and passing the entire length of the Rue Saint Honoré entered into the Palais Cardinal, and all this journey was made among so many acclamations and so much joy of the people that there could not have been more. I, who am talking to you, who naturally hate ceremonies, seeing the great commotion that there was in the city, and the joy of everybody in it, was there also, and saw more kinds of people in greater numbers than I ever saw before. The Queen Mother said in the evening, while supping at the Palais Cardinal, that she had never believed that the people of Paris had loved the King so much.

Patin took but little delight in the gorgeous spectacles in which the inhabitants of Paris have from time immemorial taken so great a pleasure. Writing to Spon<sup>16</sup> he tells

<sup>16</sup> November 16, 1645.

him of the entry into Paris of the ambassadors of Poland who were sent to ask the Princess Marie to become their Queen.

The entry was made with such pomp as one has never seen the like. They entered by the Porte Saint Honoré, in the Hôtel de Vendôme, so that they had passed across Paris from end to end, also they were seen by an infinite number of people who ran in the morning to hold their place on the streets whereby they would pass. All that day I was very busy with people who had not strength to quit their beds, but I assure you that in the other streets where they did not pass, there was so great a solitude, that it seemed to me like a city deserted by famine or pestilence, from which I pray God he will preserve you and me. I could have gone out to the Porte Saint Antoine, where I could have seen everything easily, but I did not wish to take the trouble. These public spectacles scarcely touch me, they render me melancholy, I who am naturally joyous and gay, instead of rejoicing in them as others do, when I see all this crowd I pity the vanity of those who cause it. It is true that these shows are not made for philosophers of the humor and capacity of which I would wish to be, but they are for the vulgar who are dazzled by this *éclat* and pass the time more pleasantly because of it. That day I was longer than usual in my study and employed myself there sufficiently well. My neighbors said I did very wrong in not having been at the ceremony, and that it was the most beautiful thing in the world. They reproach me that I have too little curiosity and too much melancholy, and I say they are too wasteful of their time. I appeal to you about it. If you condemn me I promise you that the first time the Pope will come to Paris, I will go expressly to the Rue Saint-Jacques ahead of him, where I will await him in a bookseller's in reading some books, and it will be only to please you, because if King Solomon with the Queen of Sheba made their entrée in all their glory, I know not if I would quit for them my books. My study pleases me far otherwise, and I keep myself there more willingly than in the most beautiful palace of Paris.

Patin's correspondence in 1660 is full of the joy which was felt throughout France at the marriage of Louis XIV with the Infanta of Spain. It was believed that thereby the long and wearisome wars, both civil and

foreign in which the country had been almost continuously engaged since the death of Henri IV would be terminated. Nevertheless Patin growls at the tumult which agitated Paris on the occasion of the entry into the capital of the young King with his bride. Guy even meditated a temporary sojourn away from his beloved city. He writes Falconet (August 20, 1660):

We have here nothing but the noise of drums, and of soldiers, and I believe, until the fête is over we shall not have better times. I have some Latin to do, which is commenced but cannot be finished in this noise. I would be at Lyon with you for a week; we could converse together, *inter privatos parietes*, of many things *quæ litteris non consignantur*, and after the tumult had lessened here, I would return by Roanne to Orleans by the Loire. . . . Our profession makes slaves of us. I shall never have any repose until I shall be buried and then they can make an epitaph for me similar to that of the Maréchal of France, named Trivulce, a Milanese, who lies buried in the Church of Saint-Nazaire at Milan, *hic quiescit qui numquam quievit* (here rests one who until now never rested). I have menaced my son, Charles, with it, who is always studying and never rests.

Five days later Patin writes Falconet that he had been one of those who officially represented the University of Paris at the formal entry of the King and his bride. The various faculties assembled at five o'clock in the morning at the Church of the Mathurins in their official robes and headed by the Rector, who had to deliver a formal address to the King, marched to the place assigned to them in the Faubourg Saint-Antoine. "There were thirty-eight doctors of medicine in their red robes, who were much gazed at," says Patin with evident pride.

Anne of Austria, mother of Louis XIV, died of a cancer of the breast on January 20, 1666. She had been ill for a long time and Patin's letters contain many references to the various charlatans who were called in to try their remedies on her during the last year of her life. In spite of the fact that she manifested friendship for Mazarin, Patin speaks with admiration of her man-

agement of affairs during the minority of her son. Readers of Dumas will find interesting the references made by Patin to the trial and disgrace of Fouquet, and to many of the other characters who figure in the immortal pages of this writer of romance.

Patin writes to Falconet (June 22, 1660) the following amusing account of a little trip that he and his wife made with his son, Robert, and his bride to Saint-Denis.

Will you pardon me, Monsieur, if I write you of the debauch I made today, Tuesday, June 22nd? I let myself be taken by my wife and our two newly wedded ones to Saint-Denis, where I saw the fair, which was a poor thing. The church is beautiful but a little dark. In the treasury there are many toys and foolish things, *pro more gentis*. At the tombs of the kings I could not refrain from weeping, seeing so many monuments of the vanity of human life. Some tears escaped me, likewise, at the grave of the great and good King François I, who founded our Royal College. It is necessary that I confess to you my weakness, I even kissed it and that of his father-in-law Louis XII, who was the father of his people and the best king we ever had in France. There are no tombs erected as yet for the Bourbons. . . . In the choir, on the right hand, beneath the grand altar, they have put during the last few days the duc d'Orléans, who died at Blois, February 2nd, on the seventh day of a continued fever, with a fluxion of the chest and four doses of *vin émétique*, of which Guénault ordered the three last, saying it was the true method of curing him. . . . My wife was ravished with these bagatelles, and took for so many truths the little tales which were told her by a monk authorizing them with his wand. I was already informed of these foolishnesses when I was at Saint-Denis at the funeral of King Louis XIII, with our Dean, M. de la Vigne, in 1642.

#### PUBLIC EXECUTIONS

Although Patin does not seem to have been possessed by the same morbid desires which led Charles Selwyn to attend, on every possible occasion, the executions of criminals; he nevertheless seems to have



had a keen relish for the details of such events, and in his letters we find descriptions of terrible crimes and often much more terrible punishments interspersed with grave dissertations on professional topics or tranquil recitals of bibliographic data. Pic, though not attempting any explanation, points out that mention of executions and crimes are comparatively rare in Patin's correspondence until the year 1654 from which time they increase *ad nauseam*.

Thus he writes to Spon, on repeated occasions of the murder of a *valet de chambre* in the house of the duc d'Orléans in Paris, and of the subsequent execution of two men and a woman for the crime. The woman was hanged but the two men were broken alive on the wheel and old Guy recites with vivacity their sufferings before death kindly terminated them. On one occasion he writes of an execution which must have given him a thrill of exultation.

At five o'clock yesterday, at the gate of Paris, they hung a chemist (who called himself a Provençal gentleman) for forgery. He was from Avignon. He said he prepared his antimony in furnaces where he made the false money. He was caught in the act and has been hanged from the end of a beam.

The joy of an antimonialist being hung for counterfeiting must have been great to Guy.

He writes Spon (May 19, 1648) that "on that day they had broken on the wheel two highwaymen, one of whom confessed that he killed more than thirty men."

Patin was filled with an unholy joy whenever an ecclesiastic was found guilty of any criminality and his letters contain many references to such cases, accompanied by comments such as he writes in telling Belin, fils (May 7, 1660) of a priest who was hanged and burned on the preceding Tuesday, "who was a bad rascal . . . There are two others yet in the Châtelet who are no better . . . The holy and sacred celibacy of priests fills the world with prostitutes, cuckolds, and bastards."

To Falconet he writes (June 16, 1650) of a robbery and murder committed by a

band of men of whom five had been captured and broken on the wheel, two were yet in prison, and nine had escaped:

I am much vexed that they have not the nine others, in order that they should undergo the punishment they merit. Is not the devil unchained in Christendom that such crimes are committed by such men in the center of Paris? Do they do worse in Turkey, where they do not preach the Evangel of the Messiah, and where there are no monks? As for me, I believe the end of the world will come soon when I see so many iniquities.

He tells Spon (January 11, 1655): "They have just broken alive at the Croix du Trahoir a wicked hangdog and great thief named Delussel, *enfant de Paris*, aged 28 years. I have never seen so many people on the streets of Paris to see him pass."

Nevertheless, to judge from the following, Patin did not like the sickening sights which were presented by the prisons of those days. He writes to Spon (April 24, 1657) that a young man had been tried for a theft at the Châtelet, and sentenced to be hanged. When the sentence was pronounced he fell in an apoplexy. "Monsieur du Châtelet asked me to go and see him, but I could not decide to do it, the prison horrifies me so much. I was once sickened for three months by it and have not the heart to return there."

Writing to Belin, fils (October 8, 1655) Patin tells him that during that week he had made a public dissection before a large audience of a woman twenty-five years old who had been executed for counterfeiting.

#### DEMONIAC POSSESSION

During the seventeenth century in France there was a great deal of discussion of the subject of demoniacal possession, a subject upon which Guy writes with great *éclat* and with a remarkable modernity of judgment and spirit. At the beginning of the century one, Martha Brossier, had succeeded in achieving great notoriety, pretending to be possessed by a demon and to have the power of exorcism. She seems to have been a nervous, hysterical young woman who

traveled about France with her father using her psychopathy as a means of procuring a livelihood. She finally came to Paris and displayed her occult phenomena, particularly at the Church of Sainte Geneviève. The Bishop of Paris appointed a commission of physicians to examine her, and they reported that she was a neurasthenic and a fraud, and that they could find no evidence of any supernatural agency in her acts. The Parlement of Paris finally ordered her imprisoned. She was released and taken to Rome by a couple of ecclesiastics who hoped to exploit her for their benefit on that particularly favorable soil, but the cardinal d'Ossat, having heard of her previous career cut short their project by causing her to be imprisoned in a convent. Simon Piètre wrote a treatise on the Brossier woman which he published under the name of Michel Marescot in which he showed the falsity of her claims.

Another famous case of supposed demoniac possession was that of Urbain Grandier, curé of the Church of St. Peter at Loudun, executed in 1633 as a sorcerer, and in support of whose claim to supernatural powers many books were written. Guy, in a letter to Spon, November 16, 1643, says that his execution was brought about by the malice of Cardinal Richelieu, concerning whom Grandier had published a libellous pamphlet. He states that in all these *possessions modernes* those concerned are always women or girls, bigots or nuns, priests or monks, and that it is not a devil of hell that is responsible for them but a devil of the flesh, engendered by the holy and sacred celibacy, or it is rather hystero-mania than a true demonomania. He accuses the monks of having favored such demonstrations in order to increase the demand for holy water, otherwise greatly diminished by the writings of Luther and Calvin. He adds as proof that one sees no such cases in Holland, Germany or England, where there are but few monks and priests. The best of all writings on the subject he thinks is the book by Johan

W. Weyer, John Wier or Joannes Wierus, "De præstigiis dæmonum," but Guy gives a long sort of *catalogue raisonné* of books on the subject, by which it is plain to see he had devoted considerable time to the study of the literature of the matter. He refers among others to the writings of Bodineau, Cæsalpinus, Charpentier or Carpentarius, Duncan, Riolan and Péitre. He adds:

A certain Thyrocus, a German *loyolite* (Jesuit) has written much on this business, but there is nothing of value in all that he has written. You would say that these master monks had assumed the task of making known the devil, and showing his claws to the world, in order that one would have recourse to their spiritual toys and holy grains.

It is curious to compare the views of Patin on the subject of witchcraft with those of his English contemporary, Sir Thomas Browne.

Besides the works of Sir Thomas Browne, Patin was familiar with those of other English authors. Writing to Belin, fils, October 28, 1658, he says "Bacon was a chancellor of England who died in 1626, and was a great personage, a mind curious and elevated. All that he wrote is good."

Saumaise, the literary antagonist of Milton was a friend of Patin's who refers to his book against Milton. Patin speaks of him as *l'excellent et l'incomparable personage*.

In one of his letters<sup>17</sup> Patin excites our curiosity by telling Spon of a wonderful invention by an Englishman, the son of a Frenchman, which is able to run a coach from Paris to Fontainebleau, "without horses by wonderful springs. They say this new machine is being prepared in the Temple. If the design succeeds it will save much hay and oats, which are of an extreme dearness."

#### LAST DAYS

Concerning the last years of Guy Patin's life we have but little information. After the Faculté de Médecine, March, 1660, had solemnly declared its approval of antimony, Patin seems to have lost his interest in its

<sup>17</sup> To Spon, January 20, 1645.

affairs, or at least to have retired from active participation in them. Of one hundred and two of its members, ninety-two had voted in favor of the repeal of the decree against it. It must have been a bitter blow to the old man when the institution, of whose fame and interests he had been such a zealous partizan, declared itself so decisively in opposition to his cherished prejudice. He continued his correspondence with his friends in Lyon but the tone of the letters is even more embittered than in earlier years, and the depression of his spirits is marked. The death of his eldest son, the exile of Charles, and the triumph of his professional rivals all depressed and worried his advancing years. The last letter of Patin in the collection published by Réveillé-Parise is dated January 22, 1672. He died a little over two months later, March 30, 1672. Nothing is known of the nature of his last illness. He was buried on April 1, 1672, in the Church of St.-Germain l'Auxerrois, at eleven o'clock in the morning.

#### BIBLIOGRAPHIC NOTES

The following is a list of the most important material bearing on Guy Patin, which has been used in the present study:

CABARET. Un Docteur Bibliophile Condamné Aux Galères Perpétuelles. *Gaz. d. bop.* Par., 1855, xxviii, 93. [An interesting account of Charles Patin.]

CHEREAU, A. Quelques lettres inédites de Guy Patin. *Union Méd.*, Patin, 1876, 3rd ser., xxi, 949; xxii, 12; 49; 129; 165; 237; 309; 381; 453; 533; 621; 697. [Under the numbers 9357 and 9358 du fonds français in the department of manuscripts the Bibliothèque nationale possesses two portfolios of original letters of Guy Patin. These are 342 in number, and they were written between 1630 and 1670, 117 are addressed to the Belins of Troyes, 169 to Charles Spon of Lyon, and 54 to the Salins, father and son who practiced at Beauvais, 1 to Bachey, a physician of Beaume, and one to the son of Claude Saumaise. Besides these letters in the Bibliothèque nationale, Réveillé-Parise published 478 letters written by Patin to Falconet of Lyon. At the date when Chereau wrote (1876) it was not known where the originals were to be found. Chereau also states that from time to time unpublished letters of Guy Patin's are found in private collections or offered at public sales. They are

regarded as rarities and bring high prices. Chereau publishes 33 letters in the course of these articles in the *Union Médicale*.]

CHEREAU, A. Bibliographie Patiniana—Catalogue chronologique, analytique et explicatif des ouvrages composés par Guy Patin, et de ceux à la publication desquels il a contribué. *Gaz. hebdomadaire de méd. et de chir.*, Par., 1879, 2nd ser., xvi, 549; 565; 581. [After commenting on the curious fact that Patin's real literary output was so small compared with his intense interest in all literary matters, Chereau proceeds to list his writings as far as he has been able to identify them.

1. Cabinet des cantiques spirituels. Propres pour élever l'Âme à Dieu, recueillis des plusieurs Pères religieuses par G. P. B. Troisième part. A Paris, chez Anthoine de Sommerville, au Palais, en la galerie des Libraires, près la Chancellerie. 1623. Avec privilège du Roy. [One of the religious Canticles in this book is signed with Patin's initials and another with those of his father.]

2. Thèses written by Patin and disputed before the Faculté de Médecine de Paris.

A. First thèse quodlibétaire; December 19, 1624: *Estne femina in virum mutatio advaros?* Is the transformation of a woman into a man impossible? [Concluded in the affirmative.]

B. Second thèse quodlibétaire; November 27, 1625: *An prægnanti periculose laboranti abortus?* [Concluded in the affirmative.]

C. Thèse quodlibétaire proposed by George Joudouyn on December 16, 1627, but written by Patin and presided at by the latter. It was entitled: *Ergo mēguromania balneum?* Are baths useful in uteromania? [Concluded in the affirmative.]

D. Patin presided again, December 17, 1643, at the thesis of the bachelor, Paul Courtois, for whom he not only chose the subject, but wrote the thesis entitled: *Estne totus homo à naturâ morbus?* Do all the diseases of man come from nature?

E. March 14, 1647, Guy Patin presided at the thèse cardinale of Jean de Montigny. To the thesis of Montigny, Patin added a disquisition of his own entitled: *Estne longæ ac jucundæ vitæ tuta certaque parens sobrietas?* Is sobriety the most sure Mother of a long and agreeable life? [This was the thesis which got him into so much trouble with the apothecaries because of the fury with which he attacked them and their preparations. In it he said that antimony was *diabolicum inter remedia monstrum; vin émélique was venenato stibio infectum; bezoar, idolum fatuorum; theriac, compositio luxuriæ; mithridatum, barbarum deforme chaos; and* confection of hyacinth and alkermes were *diamargaritum et Arabum pigmenta*. He said that these precious remedies were of no more use to cure diseases than lime or cinders, and that they were made by ignorant charlatans and birds

of prey. The Apothecaries brought a process against him and it was in court on this occasion that he made his own defence with an eloquence which won him great applause and an acquittal.]

F. On December 8, 1670, Jean Cordelle read a thesis entitled: *Estne sanguis per omnes corporis renas et arterias jugiter circumfertur?* Is the blood carried without interruption by all the veins and arteries of the body? [Patin defended the negative side in a thesis which was published. Chereau quotes a sample of the opprobrious language used by Patin, and justly states that it affords a pathetic spectacle to see a man of Patin's professional standing attempting to deny a fact which had been so clearly proven forty-two years previously.]

G. In 1671 Patin presided at another these cardinale of Jean Cordelle, and wrote for the occasion a thesis against the use of theriac as a remedy in pestilential fevers: *Estne theriaca pestilenti febre jactatis venenum?*

3. In 1628 there was published an edition of the works of Ambroise Paré on the title-page of which was the following statement: "Les oeuvres d'Ambroise Paré . . . Reveuës et corrigées en plusieurs endroits, et augmentée d'un fort ample Traicté des Fievres, tant en general, qu'en particulier, et de la curation d'icelles, nouvellement trouvé dans les manuscrits de l'auteur. Paris, Nicolas Buon, 1628." On November 4, 1631, Patin wrote to Belin, "The Paré of the last edition, wellbound, costs eight livres, without rebate. It is augmented in this last impression by a new treatise on fevers, which has been added at the end of the book, and is made by a physician *intus et in cute mihi noto*, without having put his name to it." [Chereau argues from the style of the treatise that the anonymous author was no other than Patin.]

4. In 1628 there was published at Paris an edition of the works of André du Laurens, translated into Latin from the French. The translator was Guy Patin and he also enriched the works of Henri IV's famous physician with numerous notes.

5. *Enchiridion anatomique, compilé et dressé en bon ordre par M. Jean Vigier, corrigé et augmenté en cette dernière édition (par Guy Patin)*. Par. J. Jost, 1630. [A small manual of anatomy.]

6. *Traité de la conservation de la santé par un bon régime à légitime usage des choses requises pour bien et heureusement vivre*. Paris, 1632. [This treatise on popular hygiene was published as an addendum to a work entitled "Le Médecin charitable" by Philibert Guybert. It first appeared in the seventeenth edition of Guybert's book with a separate title page and pagination. The book was translated into Latin by G. Sauvagneon of Lyon and published with the title "Medicus officiosus."]

7. In 1635 an edition of the works of de Baillou

was published at Paris, for which Patin compiled a copious analytical table of contents.

8. In 1637 Patin edited an edition of the "Orations et Præfationes" of Jean Passerat, which was published at Paris.

9. In 1641 a syndicate of publishers of Paris published the works of Daniel Sennert. [Patin had not only stimulated them to the enterprise but edited the book and wrote the preface. Sennert had died four years previous to its publication.]

10. In 1614 Patin published a manuscript by P. Chanet, a physician of la Rochelle entitled "Considerations sur la sagesse de Charron." [The author had left the manuscript in Patin's charge.]

11. Several pamphlets on behalf of the Faculté de Médecine in its contest with Renaudot. [These were anonymous but Chereau identified them by the records of the Faculté, which show that Patin was deputed to write them.]

12. In 1648 Charles Guillemeau sustained a thesis, *Estne hippocratica medendi methodus omnium certissima, tutissima præstantissima?*

Is not the Hippocratic method the most certain, surest, and most excellent to cure the sick? [When Guillemeau published his thesis he asked Patin to add to it certain "Observations" and he did so, we may be sure, with delight.]

13. In 1648 he supervised the publication of the "Encheiridium anatomicum et pathologicum" of Riolan, and in 1653 his "Opera anatomica vetera recognita et auctiora." [As Chereau says these are the chief literary evidences of Patin's interest in anatomy, although in 1623 he was appointed *Archidiaque* of the schools of medicine in the University of Paris, a position equivalent to that of *chef des travaux anatomiques*, and in 1654 he was made Professor of anatomy and botany in the Collège de France.]

14. When Sauvagneon published the "Medicus officiosus," a Latin translation of the work of Philibert Guybert with Patin's "Traité de la conservation de la santé," he added to it a little treatise by Nicolas Ellain entitled "Avis sur la peste." [At his request Patin wrote a number of notes on Ellain's work.]

15. Sauvagneon also added to the "Medicus officiosus" a translation of a little treatise entitled, "Quelques notes sur un livre de Galien: 'De missione sanguinis,' livre traduit en français et commenté par Louis Savot." [To this he also got Patin to add some notes and observations.]

16. Gérard Denisot, who died in 1594, was not only a distinguished physician of the Faculté de Médecine but also a poet. At his death his library was purchased by an advocate named Joly. Among its contents he found the manuscript of an elegant poetic version of the "Aphorisms" of Hippocrates in Greek and French verse, written by Denisot.

This manuscript Joly presented to the Faculté de Médecine, accompanying the gift by a letter of presentation written in Greek. The gift was made during the *décanat* of Patin, in 1652. Patin translated Joly's letter into Latin and added to it some annotations about Denisot. The letter in Greek with Patin's translation was published in 1656 in a book entitled "Divers opuscules tirés des Memoires de M. Antoine Loysel . . . publiés par Claude Joly . . . Par., 1656."

17. In the "Elogia" of Papyre Masson, published in 1656, those on Simon Piètre and François Miron were written by Patin.

18. Van der Linden of Leiden, dedicated the edition of Celsus, which he published in 1657, to Patin, thanking him in the dedication for the great assistance he had lent him in the work. [Chereau does not state that Patin wrote any part of the book, but says that he lent Van der Linden all the various editions of Celsus which he possessed, many of them enriched by manuscript notes by Fernel, and other savants.]

19. A Jesuit priest wrote a life of Galen, "Vita Claudii Galeni, Pergameni, medicorum principis, propriis operibus collecta, per R. P. Phil. Labbeum . . . ad V. C. Guidonem Patinum . . . Paris 1660." [How Patin came to be willing to publish anything written by one of the Order he so heartily detested is not explained, but the fact remains that he did. Patin wrote Falconet (May 28, 1660) "The Father Phil. Labbé, a Jesuit, native of Bourges, has made a little volume of the life of our Galen, all taken from his works. He has given and dedicated it to me in manuscript. I am going to have it printed in 8 vo., and then we can send it to all our friends."]

20. Patin contributed many valuable notes and additions to the third edition of "La bibliographie médicale de Van der Linden," published at Amsterdam in 1662.

21. Patin was a great admirer of Gaspard Hofmann. [When Hofmann died, in 1648, he left an unpublished manuscript which Patin purchased from his daughter for fifty écus. Although he got the manuscript in 1649 Patin did not succeed in getting it published until eighteen years later, when it

appeared with the title, "Apologia pro Galeno, sive *xpb̄σto μαθεῑον* libri duo, ex bibliotheca Guidonis Patini."]

FOUCART. *Gaz. d. bop. Par.*, 1847, 28., ix, 403. [A short account of his life with no originality.]

MONTANIER, H. *Gaz. d. bop. Par.*, 1864, xxxvii, 93; 101; 113. [Gives an outline of his biography from the ordinary sources, and reviews many of his idiosyncrasies.]

ST. LUDGERE, MOREAU DE. *Gaz. d. bop. Par.*, 1839, 2nd ser., i, 293. [Brief *résumé* of Patin's life and opinions of no originality.]

PATIN, CHARLES. *Lyceum Patavinum, sive icones et vitæ professorum Patavii MDCL, xxxii, publice docentium. Pars prius, theologos, philosophos et medicos complectens. Patavii, 1682.*

PIC, PIERRE. Guy Patin, avec 74 portraits ou documents, Paris, G. Steinheil, Éditeur, 1911.

*Lettres choisies de feu Mr. Guy Patin, Docteur en médecine de la Faculté de Paris, & Professeur au Collège Royal. Dans lesquelles sont contenues plusieurs particularités historiques sur la vie & la mort des scavans de ce siècle, sur leurs écrits & plusieurs autres choses curieuses depuis l'an 1645 jusque 1672. Augmentées de plus de 300 lettres dans cette dernière édition; et divisées en trois volumes; volume 1, A cologne, chez Pierre du Laurens. mdcxcl.*

RÉVEILLÉ—PARISE, J. H. *Lettres de Guy Patin, nouvelle édition augmentée de lettres inédites, précédée d'un notice biographique, accompagnée de remarques scientifiques, historiques, philosophiques et littéraires, avec un portrait et le fac-simile de l'écriture de Gui Patin, 3 vols. Paris, J. B. Ballière, 1846.*

TRIAIRE, PAUL. *Lettres de Guy Patin, 1630-1672, nouvelle édition collationnée sur les manuscrits autographes, publiée avec l'addition des lettres inédites, la restauration des textes retranchés ou altérés, et des notes biographiques, bibliographiques, et historiques. Paris, Librairie Honoré Champion, 1907.* [Only one volume has been published of this which promises to be the most complete and scholarly of all the editions of Patin's letters.]



## EDITORIALS

### REPORT ON THE THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE

THE third congress of the International Society of the History of Medicine was held very successfully in London from July 17-22, 1922, under the eminent honorary president, Sir Norman Moore and the acting president, Dr. Charles Singer, the well-known lecturer on the history of science at Oxford and on the history of medicine at the University College Medical School. Dr. Singer also has the unique distinction of being (as far as we know) the only English speaking medical man devoting all his time to this subject.

Distinguished representatives from most of the countries of Europe attended the congress and the various associated functions. Prominent among those present were Sir Norman Moore, Sir d'Arcy Power, Dr. and Mrs. Charles Singer, Sir James Purves Stewart, E. T. Withington, W. Wright, F. J. Poynton, W. G. Spencer, J. D. Comrie, C. J. S. Thompson, Maj. Gen., Sir F. Smith from Great Britain; Laignel-Levastine, Fosseyeux, Villaret, Jeanselme, Wickersheimer and others from France (Menetrier unfortunately could not attend); Capparoni and Castiglioni from Italy; Tricot-Royer from Belgium; de Lint from Holland, and Cumston and Sigerist (unofficially) from Switzerland. The United States was represented by Drs. B. I. Hart of Bridgeport, Conn., E. B. Krumbhaar of Philadelphia and V. Robinson of New York. Lieutenant-Colonel Fielding H. Garrison, the official

delegate, was compelled to be absent, having been ordered to the Philippines.

The papers, composing the scientific program of the meeting held at the Royal Society of Medicine, were of a high order, chiefly devoted to two subjects, the history of anatomy (including a valuable group on veterinary anatomy) and medieval epidemics. Noteworthy papers on the latter subject were read by Tricot-Royer, the engaging and stimulating former president of the association; Professor Simpson; Wickersheimer, the librarian of the University of Strasburg; Mrs. Singer and others. Mrs. Singer's scholarly presentation of her paper, and her linguistic talent displayed at the less formal meetings made a particularly delightful impression on all of those who had the good fortune to hear her. The subjects of the anatomical papers ranged from such general topics as "Beginnings of Western Anatomy," "Early Anatomic Instruction in Edinburgh," "Beginning of Anatomical Teaching in the United States" through consideration of such individuals as Galen, Leonardo da Vinci, Vesalius, Dante, Descartes and others, to the veterinary series already mentioned. The contributions to the Congress will, as in the past, be published *in toto* or in abstract in a volume of transactions.

The appropriateness of London as a meeting place for such an occasion was emphasized by the numerous points of medical historical interest to which visitors were taken, interesting to Britishers as well, as they admitted that several places visited were practically inaccessible to non-members on ordinary occasions. The Royal College

of Physicians, a reception at the Lord Mayor's Mansion House, the Royal College of Surgeons and the Hunterian Museum demonstrated by the genial curator, Sir Arthur Keith, the Barber's Hall, the Apothecaries' Hall, the Wellcome Historical Museum (presided over by its gracious "Maecenas," Henry S. Wellcome), St. Bartholomew's Hospital and a trip up the Thames to Windsor Castle, comprise the list of the attractive functions scheduled.

The receptions at the two guild halls were of especial interest. At the Barbers' Hall, a charming, oak-wainscoted Jacobean structure built into the old London wall, in Monkwell Street, Cripplegate, the master and members, clothed in their furred robes and chains, told the history since its founding by Henry VIII and exhibited the priceless plate and portraits by Holbein (Henry VIII granting the charter), Lely, Vandyke, Reynolds and others. An incident showing the power of the guild in former times was the reprimanding of Harvey, a member of the company, for "indifferent practice." The larger Apothecaries' Hall on Water Lane, rebuilt in 1671, after the great fire, presented a still greater collection of important historical relics and portraits of members, including one of Keats and another by Sir Joshua Reynolds of a bearded John Hunter that has never been reproduced. Among the eminent men connected with this "Society" were Ashmole, Cheselden, Cullen, Davy, Fothergill, Garrod, Goldsmith ("plucked" at the College of Surgeons), William Hunter, Jenner, Parkinson, Smollett, Sydenham and Wells. Its present, as well as its past importance, finds one indication in its continuance of the right of licensure to practice medicine in Great Britain. The splendid oak staircase, the hall with black oak-wainscoting, the Adams ceiling and the minstrel gallery, the parlor with its interesting collection of portraits and the library with the valuable old medical books, are but so many more reminders of what a vast storehouse of relics London is, our cradle as well as that of the British nation.

At the Royal College of Physicians, on the corner of Pall Mall and Trafalgar Square, the visitors were received by the President, Sir Humphrey Rolleston, gorgeously arrayed in robes and chain of office, with the John Caius silver caduceus in hand, and the huge gold mace on the table before him. He gave a most interesting and instructive discourse on the history of the College, which was chartered by Henry VIII in 1518 on the plan formed by Linaere, justly called the reviver of letters in England. From their first home (the gift of Linaere) in Knight-Rider Street the College moved in 1652 to a house on Amen Corner, built for them by Harvey and "endowed with his whole inheritance in his lifetime." This was unfortunately burned soon after in the great fire, so that a new home was erected at the expense of the fellows, in Warwick Lane. In 1825 the College moved to its present home at Pall Mall. The library was also mostly lost in the great fire, but one hundred and forty volumes were saved, several of which with charred covers were exhibited to the members of congress. The history of the library was sketched by Mr. Chaplin, the honorary librarian, and he also described the munificent gifts of the Marquis of Dorchester and of Dr. Lloyd Roberts of our own day. The college book treasures, displayed for the occasion, included numerous incunabula, one of two known copies of Vesalius' "Fabrica" on vellum, first editions of Harvey, Fracastorius and similar rarities. In an adjoining room, a large collection of paintings and engravings of members of the College, from Linaere, through Caius, Sydenham, Glisson, Wharton, Willis, Havers and many others, down to the most distinguished medical men of the present generation, again demonstrated the wealthy British heritage of medical traditions.

The history of St. Bartholomew's Hospital (which is celebrating this year its seven hundredth anniversary and is the oldest in England) was recounted by Sir d'Arcy Power on the occasion of our visit there. His

book on this subject is doubtless known to many readers of this journal. This hospital, which formerly belonged to the priory of St. Bartholomew in Smithfield, was incorporated in the last year of the reign of Henry VIII. Further endowed by Edward VI, it escaped the great fire, but the original buildings have mostly made way for modern improvements. It still continues, like the Pennsylvania Hospital (its counterpart in this country) to be in the front rank of the hospitals of Great Britain, and is one of those which has recently installed a "medical research unit."

The International Society of the History of Medicine was founded in Paris in 1921, with the object of studying all subjects pertaining to the history of biological and medical sciences, and of organizing congresses of medical history. Three such congresses have been held in the past three years, and henceforth will take place triennially, the next being at Geneva in 1925. Next year, however, there will be held at Brussels, a congress on the history of science, a sufficiently closely related subject to attract those interested in medical history.

The regulations of the International Society are as follows:

ARTICLE 1. In 1921, an International Society of the History of Medicine was founded at Paris, the object of the Society being the study of all subjects pertaining to the history of biological and medical sciences, considered in the largest acceptation, and more especially the organization of congresses of medical history. The headquarters of the Society are at Paris.

ARTICLE 2. The number of members is unlimited. National sections are to be formed, their number being likewise unlimited and may be increased by the entrance of new national societies into the International Society. A new national society, when unanimously presented by the international permanent committee, will be accepted by the general assembly, if it obtains two-thirds of the votes of the members present.

ARTICLE 3. Each national section shall recruit its members as it may seem fit, but the nomination of its members must be submitted to the approval of the international permanent committee.

ARTICLE 4. The candidate of those countries, whose national section has not been founded, must, in order to join the International Society, directly communicate with the international bureau which will receive them individually if they obtain a two-thirds vote.

ARTICLE 5. Each national section shall appoint three members, who will represent a national committee; one of these members shall be a delegate to the international permanent committee and is eligible for reelection.

Each national section has the right of a vote for not more than ten members and a supplementary vote by fractions of twenty over and above the ten members.

ARTICLE 6. The international permanent committee is composed of one delegate from each national section, the former presidents and general secretaries of the actual and previous congresses. The permanent committee selects from among the members of the Society, a president, four vice-presidents, a general secretary, and an archivist and a treasurer, but these must obtain an absolute majority of the votes. The duration of office in the bureau is four years, excepting for the general secretary, whose term of office is six years. The incumbents of these offices are eligible for reelection.

ARTICLE 7. The Society is administered by the international permanent committee, which is to settle all questions of internal order or dispute, as well as those pertaining to the discipline and dignity of the Society. The committee also controls the finances of the Society.

ARTICLE 8. In principle, the Society meets in congresses once in every three years, in a country designated by the general assembly. This congress is presided over by a member elected by the national committee. The national committee of the country, in which the congress will be held, appoints a general secretary belonging to this country.

ARTICLE 9. The resources of the Society are the membership dues and other resources provided for by law. The membership dues for 1922, including the right to attend the London congress, are forty francs.

ARTICLE 10. Members, who have not paid their dues at the time of the congress, shall be considered as having resigned from the Society.

ARTICLE 11. The elimination of a member of the Society can only be effected by the perma-



nent committee with a majority of a two-third vote cast at a meeting especially called to act upon the matter.

ARTICLE 12. The dissolution of the Society can only be voted by a general assembly especially convened for this purpose and with a majority of a two-thirds vote. In case of dissolution the assets of the Society shall be assigned to one or to several scientific societies.

ARTICLE 13. The present regulations can only be changed by a two-thirds vote of the general assembly after a proposition by the bureau of the Society or by a request to this effect signed by at least twenty members of the Society.

Although a national section has not yet been organized in this country, it is hoped that one will be formed in the near future. Anyone interested in this project is requested to communicate with the writer of this article.

EDWARD B. KRUMBHAR, M.D.

From the Laboratories of the  
Philadelphia General Hospital.

DR. ERNEST WICKERSHEIMER,  
LIBRARIAN OF THE UNIVERSITY OF  
STRASBURG

WHEN the Commander-in-chief of the American Expeditionary Forces stood before a simple tomb in the little cemetery of Picpus and pledged the faith of America to the spirit of the noble Frenchman whose mortal dust lies there sepulchered, he added one more to those cables, composed of a medium as imponderable as the ether itself, that pass back and forth over Ocean's broad reaches to unite in a traditional and, let it be devoutly hoped, never-ending friendship the two greatest of Earth's Republics, France and the United States. The younger nation had come to repay, in some measure, on the battle-scarred fields of France the debt that it owed to the revered Lafayette and to the government that had sent him with soldiers and sailors to the assistance of the colonists who struggled against tyranny in the New World a century and a half ago. Into the

thoughts of many in America there came, in the early days of our participation in the World War, a retrospective query as to what might have been the ultimate fate of General Washington and his ragged troops had there been withheld that succor which came from the continent of Europe at a moment so pitifully dark in the military operations of our Revolutionary struggle. Without Lafayette, without Rochambeau, without Kosciuszko, without all the help so sympathetically extended by an older to a younger civilization fighting to establish itself on a foundation of new and untried social and political relationships, would there now be in existence these free and independent United States of America? To answer this question with affirmative assurance is not easy.

The magnitude of the debt which America owes to the liberty-loving ardor of the greatest of all French patriots of his day has ever been recognized by the thoughtful among our citizens. He came to these shores in a spirit of fiery protest against the ancient order of tyranny. While he was the greatest exemplar of this spirit among continental Europeans of that period, nevertheless he was not its sole possessor. The French people as a nation had already manifested their distaste for the yoke of tyrants, and not many years later they were again to give terrible expression to this sentiment in the extreme measures of the French Revolution. Their ideals have always been righteous, even though cruel measures were in those days employed to attain them.

This same idealism and the same spirit of devotion were made manifest in no less degree through the medium of the almost unbelievable heroism of Frenchmen of every degree, from the officer who traced his lineage to ancient nobility down to the humblest *poilu* of peasant origin, during the four long years when the citizen army of France stood firm behind its muttered vow: *Ils ne passeront pas*. Little did the mad Prussian reck of the survival of that

dauntless spirit of Lafayette among the latter's compatriots of a later generation, when in 1914 he launched, in violation of the finest traditions of the great nation over which he himself ruled, his man-made engine of war against the rest of the civilized world in a vain and unhallowed attempt to subdue it to his own insane desires. For the defence of their own land, and incidentally of the rest of civilization, Frenchmen of all creeds, classes, professions, and shades of opinion, gathered to give battle to the invader. Each offered his best, according to his particular individual qualifications, to the cause in which he was engaged. Of no class can this be more truly said than of the members of the French medical fraternity. Men bearing the most illustrious names in French medicine went in the improvised motor transport corps of Marshal Joffre's army of defence to the line of combat in those anxious days of August, 1914. Many of these, before the tide of German invasion was finally checked, had laid down their lives in a heroism excelled by none. Still others came back wounded and irremediably shattered in health. Those who had escaped harm in the first shock of conflict and those who came from the further parts of France took up the work of caring for the wounded and the sick and of maintaining the health of the active army at its highest possible level in preparation for the long continued period of struggle that was foreseen.

Among the many members of the French medical profession who continued to perform active military service up to the very moment of the armistice was a quiet, young scholar, whose friendship for our own land is doubly secure in that his wife is of American parentage and birth. Dr. Ernest Wickersheimer, son of Alsatian parents, was born at Bar-le-Duc (Meuse) July 12, 1880. Because of his parentage he speaks French and German with equal facility. In other words he was, as it has been so aptly expressed by Dr. Ledoux Lebard, "born with two languages." After the com-

pletion of his preliminary education according to the well-known French standards and methods, Dr. Wickersheimer undertook the study of medicine and received from the Paris Medical Faculty the degree of Doctor of Medicine in July, 1905, having submitted a thesis on "Medicine and Physicians in France at the Time of the Renaissance," for which he was awarded a silver medal. Immediately after his graduation he attached himself to the library of the Medical Faculty of Paris where he remained for several months. Following this period he passed six months in the library of the University of Jena studying the German methods of bibliography and library organization. Upon the completion of his tour at that institution he received the so-called "certificate of aptitude" for the duties of university librarian. Armed with this diploma he gained admission as a student to the Institute of Medical History at Leipzig, then, as now, under the direction of Professor Karl Sudhoff. In 1909, upon his return to Paris, Dr. Wickersheimer was made librarian of the Sorbonne (University of Paris), in which position he remained for something over a year, until, in 1910, he was called to succeed Dr. Laloy as librarian of the Academy of Medicine. In the performance of these duties he continued as a resident of the metropolis until commissioned as a medical officer of the French Army upon the outbreak of the war. He was appointed *Médecin-aide-major*, 2nd class, on August 2, 1914, promoted to the grade of *Médecin-aide-major*, 1st class, in December, 1914, and to that of *Médecin-major*, 2nd class, in September, 1918. The period of his active military duty thus comprised the whole four years of the war, during the earlier part of which he was attached to a French ambulance, and later to the 110th Regiment of Infantry in whose ranks he took part in the engagements of Flanders (1917), Ourey and Ailette (1918).

In 1919 Dr. Wickersheimer, after his relief from military service, was appointed

administrative chief of the university library at Strasburg. This institution, having its geographical position between the French and German fields of academic learning, has been and will always be unique among European universities, and this fact must of necessity render delicate the rôle played by each and every person who has to do with any phase of its administration. Dr.



ERNEST WICKERSHEIMER, M. D.

Wickersheimer, knowing as intimately as he does the intellectual habits of both France and Germany, should be peculiarly adapted to the performance of the duties that devolve upon him.

The subject of this biographical sketch is a member of various medical historical societies in England, Italy, Holland and other countries. For nine years immediately preceding his departure for Strasburg, he was general secretary of the "Société Française d'Histoire de la Médecine" at Paris. He likewise edited the bulletin of this organization for many years. It

must be a source of regret to French medical educators that Dr. Wickersheimer's exceptional qualifications failed to secure for him the appointment to the chair of medical history in the Paris Medical Faculty. His ineligibility for this position depended upon that red tape which so encumbers the operation of many institutions, governmental and educational, not only in the older countries of Europe, but in certain younger nations as well. It is actually the fact that in France no physician, no matter what his attainments in his chosen specialty may be, can become a candidate for elevation to professorial dignity unless he be an *agrégé*, to secure which titular position he must have successfully passed examinations in a great number of subjects ranging far afield from his own specialty.

Including his graduating thesis (which Dr. Wickersheimer himself modestly looks upon as a "youthful offense," but which is in point of fact a very scholarly account of the progress of French medicine and surgery during the sixteenth century), there have come from his pen a very considerable number of contributions to the history of medicine. A complete bibliography of his writings is not to be included in this article, but individual ones merit special notice. In 1909 he contributed to literature a study of the "Consilia" by Master Guillaume Boucher, and a *résumé* of the "Liber de Calculo" written by Johannes Jacobi of Montpellier, in which are set forth the various therapeutic measures employed in the treatment of calculus before the end of the fourteenth century. These were followed in 1910 by "The First Dissections of the Paris Medical Faculty," and in succeeding years by other articles dealing with systems of materia medica and therapeutics, with the treatment of hydrophobia by sea baths, with biographies of many teachers and students of the art of medicine gathered together at Paris from all lands in the fourteenth and fifteenth centuries, with earlier anatomical texts, with treatises on blood-letting, astrology, and with other matters.

Before the beginning of the great World War, Dr. Wickersheimer had completed, though he had not yet published, his most important historical effort, namely, an edition of the original "Commentaries of the Medical Faculty of the University of Paris from 1395 to 1516," with an introduction written by himself, which comprises a very carefully compiled history of the Paris Medical Faculty between the dates mentioned. Perhaps no more thoroughly investigated piece of work along the lines of historical research in medicine has ever been published. In 1919, just before his connection with the library of the Paris Academy of Medicine was severed, there appeared a catalogue of all its books and pamphlets, published by the librarian in two volumes. And finally, since going to Strasburg, he has prepared a catalogue of all manuscripts in the university library. This may be expected shortly to come from the press. In the field of bibliography these two compilations are to be compared with the "Index Catalogue of the Surgeon-General's Library" begun by Billings in 1880 and with the "Catalogue Medical de la Bibliothèque Impériale" which was completed in 1889.

Dr. Wickersheimer's literary style is finished and elegant. All the writings that his hand has given forth show a profound erudition and that spirit of thorough-going and painstaking research so essential for one who would be known as a historian. In his article on "The First Dissections at the Faculty of Medicine of Paris," published in the *Bulletin de la Société de l'Histoire de Paris et de l'Île de France* in 1910, he outlines the spirit of hostility existing in the fifteenth century between the surgeons on the one hand and the faculty of medicine on the other. The latter had in a sense allied itself with the barbers whom the surgeons were gradually replacing.

It was not that the surgeons had made any pretense of prohibiting anatomical study to the physicians. Such pretension would have been all the less justifiable, since, whatever Quesnay may have said about it, it is far from being

proven that dissections were being made at Saint-Côme at the time of which we are writing; but the surgeons were looking with an evil eye upon the tacit alliance that the faculty had a long time previously concluded with the barbers. Fearful of being accused by the surgeons of trespassing upon their precincts, and knowing that Saint-Côme was very much in favor with the King of France, the physicians gave the barbers their instruction in secret and feigned a very lively indignation when one of them was so imprudent as to manifest too great an inclination for friendship with the barbers.

We shall see, now, that it was especially for the instruction of the barbers that the faculty had commenced the dissection of cadavers. Let it be well understood how doubtful it is that an autopsy on a personage so highly placed as the Bishop of Arras could have been used for the simple purpose of an anatomical demonstration, whether for the benefit of the barbers or students; but it is none the less true that if one reads even so little on the subject of dissections in the Commentaries, he finds that the masters-*regent* were not at all anxious that report of these dissections should be too much bruited about since they desired to avoid arousing the always lively jealousy of the surgeons.

In November, 1491 the barbers had secured from the authorities the corpse of a criminal who had been put to death *pro anatomia pro ipsis Parisius fienda contra privilegia et consuetudines ipsius Facultatis*. The faculty, which knew perfectly well how to conduct itself in the matter, appeared very indignant when the surgeons informed its members of this fact on Thursday, the 17th of November. It decided in all solemnity to take cognizance of this evil act and, if there should be necessity, to make formal request of the Chancellor of the University for his support.

Two days later, on the 19th of November, came a new complaint from the surgeons. They had seen with great regret, said they, that certain masters of the faculty had assisted the barbers in this anatomical demonstration, and that they had even discussed the subject in their native tongue: *Legebant etiam prefati magistri dictis barbitonsoribus vernacula lingua*.

The punishment inflicted by the faculty upon its members was not excessively severe; it even expressed the opinion that there were

extenuating circumstances in the case of its delinquent members *quod predicti magistri hoc fecerant ad evitandum majus malum, scilicet ne aliquis extraneus fecisset*. Nevertheless it prohibited them, at least until further instructions, from continuing these lessons.

In 1910 Dr. Wickersheimer visited the United States, and upon his return to France published in *La Revue des Bibliothèques* certain "Notes on some American Libraries." He confines himself to the libraries of Crown Point, Indiana (a town of 2,500 inhabitants) and to Chicago (whose population is 2,500,000). That he should include Crown Point and Chicago in a single metropolitan class, that he should in some measure look upon Crown Point as a sort of pivot of the universe, will be moderately difficult of comprehension by the average American reader. But "there's a reason." Madame Wickersheimer first drew the breath of life in that community.

A shrewd instinct for medical "bluff" manifests itself in the publication of an account of a sextuplet pregnancy occurring in 1798. The short article begins with the naïve statement that "sextuplet pregnancies are rather rare," and the writer a moment later gives ironical expression to his own opinion of the matter in the words: "It is possible to establish the authenticity of this observation since it has been reported by a physician who was *not* present at the confinement."

Ancient application of the principles of employers' liability and compensation for workmen, even though in small amounts, is described under the title, "An Industrial Accident in 1502." In free translation this short note is as follows:

At the end of the fifteenth century the buildings which the faculty of Paris had caused to be constructed a few years previously in the "Rue de la Bûcherie" had already become insufficient in size. It was decided to repair and enlarge them in such measure as the slender resources of the corporation would permit.

The faculty also decided to build a chapel. In the autumn of 1502 a stone-mason employed on the construction of this chapel became the

victim of an accident which occurred in the court-yard of the school.

What was the accident? We know nothing of its nature; but the injury must have been without doubt quite serious for the injured man was obliged to interrupt his labor. On the 29th of November his wife appeared before the faculty and begged the dean and the other masters to come to her assistance. Her plea was not in vain; the masters-regent, seized with pity, gave her the very liberal (at that period) sum of sixty sous.

This is how Master Richard Gassion, then dean of the faculty, reports this deed of generosity on the part of his *confrères*: "Likewise at the same time there came a certain poor woman, the wife of a certain assistant of the stone-masons, who was injured in the building of the chapel of the school, and who begged the faculty for alms. To her, in consideration of piety, the faculty gave sixty sous." A little further on there is found this entry under the heading of unusual expenditures: "Item: To a certain stone-mason who had been injured in the court yard of the school there was given in consideration of piety and by order of the faculty the sum of sixty sous."

Dr. Wickersheimer discusses the ancient treatment of rabies by sea baths in the bulletin of the French Society of the History of Medicine in 1907. Among other things he says:

The custom of treating rabies by sea baths is very old. If one may believe the legend, the poet Euripides having been bitten by mad dogs was plunged into the sea by Egyptian priests. . . . In France, at the end of the sixteenth century, a treatise on hunting, "The Book of King Modus and of Queen Racid," advises those suffering with rabies to go bathe in the ocean. It has been seen that at Certe this advice was put into practice. A letter addressed to Andry by a Marseilles physician of the name of Raymond, informs us that the same treatment was in vogue at Marseilles, and Desault describes the method of administering the treatment on the coast of Gascony: "I have seen this ceremony: One places the patient clad only in a shirt on his knees in the water of the ocean near the shore. When a wave approaches two strong and powerful men force his head downward, and this causes the wave to

pass over his whole body, a process which is repeated nine times. He is then dried and clothed. The patient now looks upon himself as cured beyond possibility of doubt."

Up to the time of the European War scientific works of foreign origin appearing in this country in English translation very largely bore the "made in Germany" mark. French science was very scantily represented. This was due to the fundamentally different courses of action pursued by the two nations. The Germans spread themselves abroad over the face of the earth carrying with them their literature, science and art, and translating their writings on those subjects into the languages of all the countries to which they went. In the United States, German works in all branches of science, mathematics, engineering, chemistry, and medicine, have appeared in profusion, and many of them have served as text books in our institutions of higher learning. The Frenchman, on the other hand, looking upon France as the garden spot of Earth, stayed at home. A few went to Germany for purposes of study; a very few received a portion of their education in England; the rest remained within the confines of the land of their birth. They made little effort to establish and maintain scientific relationships with their colleagues of America, and on the rare occasions when French scientific literature was translated into English it was done rather at the instance of the English speaking and reading peoples than of the French themselves.

During the course of the World War, Frenchmen clearly recognized and frankly avowed the disadvantages of their self-formulated policy of isolation, and one evidence of a distinct purpose on their part to institute a closer *rapprochement* with their former allies of fighting days in the matter of science and the humanities is the increasing frequency with which the English translations of French literature on many subjects are appearing among us. It is to be hoped that in the not too distant future the knowledge of medical history,

brought to light through the researches of Dr. Wickersheimer and his co-workers in France, may be made available to the profession in America in greater measure than is now the case through the medium of adequate translations.

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## ANNALS OF MEDICAL HISTORY

With the conclusion of the fourth volume of the ANNALS OF MEDICAL HISTORY we are moved to considering whether it is fulfilling its purpose and whether the members of the medical profession of the United States realize what such fulfilment involves on the part of those who are carrying it out.

For a number of years prior to the appearance of the ANNALS there had been a remarkable increase in interest in the history and cultural aspects of medicine. Societies for the study of the historical aspects of medicine had sprung up, articles appertaining to it appeared with increasing frequency in medical journals, and the writers of textbooks showed a tendency to include historic matter in their considerations of purely scientific subjects.

These manifestations of awakening interest in the subject were especially due to the influence of one great man, Osler. It would be useless to recall in how many and what various ways this influence was exercised and it would be impossible to estimate the extent to which it reached.

Out of this increased interest in and study of medical history, a demand arose for a vehicle in which the results could be published. Strictly historical writings were seldom received with favor by the editors and publishers of medical journals and even if published in them became difficult of access by those who wished to consult or use them. The *Johns Hopkins Hospital Bulletin* was the only notable exception to this rule and its columns still contain invaluable contributions on historical topics. Several attempts had been made to establish a publi-

cation exclusively devoted to such matter but they were shortlived, chiefly owing to lack of support on the part of the medical profession. A notable example of this neglect was the excellent *Medical Library and Historical Journal*, subsequently the *Æsculapian*, which in the course of a few years published a great deal of valuable material. The *Bulletin of the Society of Medical History of Chicago* was and continues to be a repository of valuable matter but its more or less local character lessens its importance to the profession at large.

The ANNALS OF MEDICAL HISTORY was born in 1917, with Mars well in the ascendant. Its birth was hailed with acclaim as the long hoped for suitable medium for the medical historian and pabulum for student and reader. Few can realize the courage and perseverance required of its publisher to persist in his plan through the years which have passed. The high cost of labor, the shortage of paper, the preoccupation of men's minds with the terrible doings of the war, and the lack of money to subscribe on the part of many who would otherwise have done so, all rendered the task of weathering the past five years one of incalculable difficulty. But the ANNALS and its publisher have emerged triumphantly and now that the tumult of war has subsided we will be better able to judge and appraise the attitude of the medical profession towards such a publication in the course of the next few years.

There are certain unique features of the ANNALS to which attention must be drawn. (1) It contains no advertising matter, not even the books of its publisher. If one stops to consider that most periodicals are largely, and some entirely, supported by the advertising in their pages what this means may be readily recognized. (2) The columns of the ANNALS are closed to the so-called *facetiæ* which are supposed to lighten the task of reading the heavier material which is contained in the columns of a serious periodical. Just as it is a supposed function of the theatrical manager to provide the lightest of musical comedy revues for the T. B. M. so is the medical publisher supposed to supply

the lighter pabulum for the "busy practitioner" or "overworked doctor," and there may be some who regret the absence of such provision. We have tried to give our readers from cover to cover reading matter of the best quality and of the kind for which they pay. (3) The make-up of the ANNALS is of the highest quality. The paper, letter press, illustrations will bear comparison with any periodical, medical or lay, with which we are acquainted.

Our reasons for this somewhat lengthy peroration are not merely to trumpet forth the glories of the ANNALS. We wish to direct the attention of the members of the medical profession to what is offered them in the hope that they will avail themselves of it and aid in enabling it to continue the career which has been successful in spite of the many difficulties with which it has been beset. The ANNALS is dependent for its support solely on its subscription list. We hope those who wish it success will not only become subscribers but seek to enroll others. The individual expense divided among a number of persons is a very small amount indeed when contrasted with the great financial responsibility of the publisher. Such a journal can never be made a success in the business sense of the term, but it can and ought to be self-supporting, if those who have expressed their desire for its existence would contribute their eight dollars a year towards its maintenance. Should the ANNALS OF MEDICAL HISTORY ever be discontinued it would be many years before the affect of such an experience would be forgotten to the extent of inducing another effort in the same direction.

Again we invite all those who are writing on medical history or literature to consider it their first choice as a medium of publication. The ANNALS has achieved universal recognition in the English language. It is widely quoted and abstracted in England, France, and Germany, and in the far East and many of our contributors are natives of other countries. It is our aim to offer in the ANNALS a channel whereby the very best medical history may be had by a large circle of readers. F. R. P.



## CORRESPONDENCE

To the Editor:

The honor of being the author of the first experimental scientific study carried out in this country belongs to a certain Captain Hall. The study is entitled "Experiments on the Effects of the Poison of the Rattlesnake," by Capt. Hall, and is contained in the *Philosophical Transactions*, 1728, xxxv, No. 399, p. 309.

The following is a reprint reproduction of this communication.

In *South Carolina*, on the tenth of *May*, Anno 1720, having got a fine healthful Rattlesnake about four feet long, I persuaded three or four Gentlemen, and one Mr *Kidwell* a Surgeon, to assist me in making some Experiments on the Effects of it's Poison.

We got three *Curr-Dogs*, the biggest not larger than a common *Harrier*, and the least about the bigness of the largest sized *Lap-Dog*, all of them smooth-haired.

The Snake being tyed and pinned down to a *Grass-plate*, we took the largest of them, which was a white one and having tyed a Cord round his Neck, so that it should not strangle him, another Person held one end while I held the other; the length was not more than four Yards each way from the Dog.

Immediately on our bringing the Dog over the Snake, the Snake raised himself near two feet, and bit the Dog as he was jumping; the Dog yelped, by which I perceived he was bitten; and upon it I pulled him to me, as fast as I could, and perceived his Eyes fixt, his Tongue between his Teeth, which were closed, his Lips so drawn up as to leave his Teeth and Gums bare: In short, he was quite dead in a quarter of a Minute; but one Person (beside myself) was of Opinion it was in half that time: The first was the Opinion of the *By-standers*, who were five or six; but I believe, none of them so much used to measure time as the Gentleman and I were, from our constant making use of the half Minute, and quarter Minute Glass at Sea. We could not see

where the Dog was bitten, nor any Blood: Upon which we ordered some hot Water to scald the Hair off; when we could find but one Puncture, which looked of a bluish Green a little round it; it was just between his fore Leg, and his Breast; where (when the Legs are distended) the Hair is much thinner than in some other places.

Half an Hour after the first Bite we took a second Dog, which was somewhat less, of a *Liver-Colour*, and in like manner brought him over the Snake, which in a very little time bit his Ear, so that we all saw it; he yelped very much, and soon shewed the signs of being very sick, holding that Ear that was bit uppermost. He reeled and staggered about for some time; then he fell down, and struggled as if convulsed, and for two or three times got up, each time wagging his Tail, tho' slowly, and attempting to follow a *Negro-Boy*, who used to make much of him. We put him into a Closet, and ordered the Boy to look after him.

About an Hour after the second was bitten, we took the third Dog in like manner: The Snake bit him on the right side of the Belly, about two Inches behind the long Ribs; for we saw he had drawn Blood there. The Dog for about a Minute, seemed not to be hurt; so we let him go, being one we could get again when we pleased. For that Day we put up the Snake, imagining his Poison was very near, if not quite, expended.

Two Hours after the second Dog was bit, the Boy told us he was dead.

About an Hour after I persuaded Mr *Kidwell* to open him, and I was in no small Haste to examine the Heart, where I persuaded my self, I should discover something extraordinary; but could not perceive any remarkable Difference between that and many others I had seen, where there was no Poison in the Case. Mr *Kidwell* laid open the Skull, and was of Opinion, that the Brain was more red and swoln than any he had ever seen; and he told me a little while after, that the Blood turned very black.

For that Day we heard no more of the third Dog which was bitten; but the next Morning the



Woman who owned him came to me, complaining of my Cruelty for killing her Dog. She did not know when he died, but said she saw him at seven that Evening, which was about three hours after he was bit; and that he was so sick he could scarce wag his Tail, None of these Dogs were swoln before they died.

On the Fourteenth, we got two Dogs both as big as common Bull Dogs. The first Dog, which he bit on the Inside of his left Thigh, died in half a minute exactly, in the Opinion of two Gentlemen, who kept their Watches in their hands all the while: There were two very small Punctures in his Thigh, which looked livid, tho' no Blood was drawn. This Dog did not swell for four Hours after he was dead.

The second Dog was bit about an Hour after the first, on the outside of his Thigh, where we perceived the Blood at two places: He soon sickened, and died in four Minutes.

We thought his Poison was not spent; so we got a Cat (for we could get no more Dogs) which he bit about an Hour after, though I cannot say where. The Cat was very sick, and we put her up in a Closet: By some means the Cat was let out in less than an Hour and a half after she was bitten. The next Morning early she was found dead in the Garden, and much swoln; so that no body cared to examine or search where she was bit.

About a quarter of an Hour after he had bitten the Cat, he bit a Hen twice: The Hen seemed very sick and drooping, and could not, or did not fly up to her usual place of Roost among the rest that Night; but the next Day she seemed very well, and continued so till Evening, when I ordered her to be killed, and her Feathers scalded off: There were two Punctures in her Thigh, and a Scratch on her Breast over the Craw, all which looked livid.

About a Week after, having got a large Bull Frog, we brought that over him as usual: He bit it with much force; so that he seemed to fasten for a small space. The Frog died in two minutes or thereabouts. In less than an quarter of an Hour he bit a Chicken, which was hatched the *February* before, that died in three minutes; I can not say where it was bit, and I was at a loss to try any further Experiments for a long time, for want of proper Subjects. Dogs and Cats

were not to be had; for the good Women, whose Dogs had been killed, exclaimed so much, that durst not meddle with one afterwards.

About the middle of *June* I took him out according to Custom, and having got a common black Snake, not of the Viper-kind, about two and a half or near three Feet long, in good Health, just taken; I put them both together, and irritated them both, that they bit each other, and I perceived the black Snake had drawn Blood of the Rattlesnake before I took them asunder.

In less than eight Minutes the black Snake was dead, and I could not perceive the Rattlesnake at all the worse or sick.

On the last Day of *June*, I took him out to try, whether if he bit himself, it would not prove mortal to him. I hanged him so, that he was not above half his Length on the Ground; and with two Needles at the End of a Stick, one to prick, the other to scratch, irritated him so much that he soon bit himself, after having attempted to bite the Stick many times. I then let him down, and he was quite dead in eight minutes or thereabouts, but am sure it did not exceed twelve Minutes.

A Gentleman persuaded me to cut the Snake in five Pieces which he gave to a Hog, the Head-part first, in Sight of many of us. The Hog eat up all the Snake, and ten or twelve Days afterwards I saw the same Hog alive and in Health.

This was no more than I had seen before; but doubted they had taken some other Snake for a Rattlesnake: For being at the House of *Charles Hart Esq.*; they shewed me a Snake, which a Negro told me he had killed just before; it was in three pieces, the Head of it bruised into the Ground. While I was looking on, a Sow came and eat it up very greedily, the Negro-man endeavoured to hinder her, being afraid it would kill her; for she had pigs following her.

I never heard she was sick for it, tho' I inquired; and about ten Days after I saw her in very good Health. I have heard fifty Relations of the same kind, and am told that those Hogs which feed in the Marshes will run after the common sort of Watersnakes, which are not poisonous, and will feed on them greedily: And, in *Maryland*, last *August* was two years, I saw a Hog eat up the Head of a Rattlesnake just

cut off, and while it was gasping very dreadfully; and I was told, it was a common thing, and it would do them no harm.

On the tenth of June 1723, Mr *Thomas Cooper*, a Gentleman who practices Physic at *Charles Town*, sent to me to let me know, he had got a fine Rattlesnake which had been taken not above four Days, was about three feet and a half long, and that he designed to try whether he could save some of the Dogs after the Snake should bite them. He provided a large quantity of *Venice-Treacle* or *Mitbridate*, I can't positively say whether, which he divided into two Potions each about two Ounces; to one of them he put a large quantity of *Diaphoretic Antimony*.

The first Dog which the Snake bit on the Inside of the Thigh, died so soon (*viz.*) in about half a minute, that we could not get the Poison, which was that *without Antimony*, down his Throat soon enough to expect it could have Effect.

Above an Hour after, the second Dog was bitten by him, and had two Punctures or Holes in the fleshy part of the Inside of his left fore Leg, which did bleed more than any I had seen before: We immediately got down his Throat that Preparation *with Antimony*. He soon grew very sick and strove to vomit; but I think brought up very little, if any; he frothed at the Mouth, and bit at the Grass, which he champed, as if he were mad; and indeed we were all afraid of him. We therefore put him into a Room and there kept him till next Morning, where I saw him as I thought recovered: We threwed him some Meat, which he eat, so we let him out and he went home. About a Month after that, the Dog's Hair came off, and his Master killed him, being so ugly to look at; for he told me, he looked like a Leprous Person (that was his very Expression). I never heard that this Dog swelled.

The third Dog which he bit was a Shaggy Spaniel, about an hour and a quarter after the second. He was bitten on the foremost part of his right Shoulder, as we perceived by the Blood. The Dog seemed to bite at the place himself, and was very sick for about two or three hours; but, without any means or application, he recovered and I never heard he was sick afterwards.

JACOB ROSENBLOOM, M.D.  
Pittsburg, Pa.

*To the Editor:*

The Library of the College of Physicians of Philadelphia, through the generosity of Henry Reed Hatfield, Esq., has recently acquired the following work, which is of such extreme rarity that it might be classed as unique; the only other copy found recorded, which is classed as an "unique example," is described as having 44 leaves; no mention being made of the two leaves of errata present in this copy:

Francisco Lopez de Villalobos—Congressiones—1514. Folio 1, title page, bears the frontispiece consisting of a shield with the Arms of Spain crowned or overspread by an eagle. At the bottom of the shield the words "Congressiones: vel duodecim principiorum liber nuper editus" and lower down "Cum privilegio." Folio 38 b, foot of page, "Ex impressione Salāntina per honorabilē virū Laurentiū de Liom de deis. Anno dñi millesimo q̄ngentesimo decimo q̄rto." Then follow two leaves containing two pages of errata printed in red and black. The six remaining leaves contain ten letters, also in the Latin tongue, inserted by Villalobos, dated from 1498 to 1510, and of much historical interest. Folio 46, end, "Impresum Salmantice [et] exactissime castigatum ex expensis venerabilis viri Laurentii de Liom dedeis. Anno domini millesimo quingētesimo decimo quarto, decima quinta. Mensis Septembris. Laus deo."

Villalobos or Lopez de Villalobos has, for some reason, been overlooked by a number of medical historians. Baas' "Outlines of the History of Medicine and the Medical Profession," 1889, gives him four lines: "Francisco Lopez de Villalobos (1473-1560) ordinary physician of Charles v and Philip II, in his "El sumario de la medecina con un tratado sobre los pestiferas bubas" (Salamanca, 1498) gives us one of the earliest descriptions of syphilis." Morejon's "Historia Bibliografica de la Medicina Española," 1842, gives several pages to "Dr. Francisco Villalobos" and mentions his "El sumario," the "Glosa in Plinii historiae naturalis," and the "Libro de los problemas," but does not mention his

"Congressiones." Chinchilla, in his "Anales Historicos de la Medicina en General, y Biografica—Bibliograficos de la Española en Particular," 1841, gives a very elaborate account of "Francisco Lopez de Villalobos"; the "El sumario," poem on syphilis, is given in full in Spanish, as well as "Los problemas," but no mention is made of the "Congressiones." It is rather curious that in Sudhoff's "Studien zur Geschichte der Medizin," 1907-1918, and in his "Der Ursprung der Syphilis," 1913, the name of Villalobos does not appear. Proksch in his "Die Litteratur über die venerischen Krankheiten," 1889, v. 1, lists "El sumario" under the heading of "Gedichte."

Of the many bibliographies consulted, those which include the name of Villalobos quote only the three works, "El sumario de la medicina, con un tratado sobre las pestíferas bubas," 1498; "Glossa in Plinii Historiæ naturalis primum et secundum libros," 1524; and "Problema con otros dialogos de medicina y familiares," 1543.

Brunet, in his "Manuel du Libraire," intimates that there were two Villalobos covering the period when the books quoted were issued; under Villalobos (Francisco de) he mentions the "Glossa in Plinii historiæ naturalis," etc., and "Los Problemas," with a note—"Pour un Villalobos que nous croyons être différent de celui-ci, voyez Lopez (Franc.)." Under "Lopez Villalobos (Franc.);" he gives a description of the "El sumario" with the note—"Ce livre fort rare est écrit en vers," and further on, "Nous doutons fort que l'auteur soit le même que François de Villalobos, dont on a plusieurs ouvrages de médecine et d'histoire naturelle (voy. Villalobos) qui sont attribués à François Lopez dans la *Biogr. Univers.*, xlviii, art. Villalobos."

In fact, we have been unable to find quoted the work described "Congressiones," 1514, in any medical history or bibliog-

raphy, medical or general, that we have consulted. Only in "The Medical Works of Francisco Lopez de Villalobos, now first translated with commentary and biography, by George Gaskoin, London, Churchill, 1870," is the "Congressiones" mentioned, and there it is fully described. This work of Gaskoin is extremely interesting and well worth perusal by anyone interested in historical subjects. From him we learn that "Francisco Lopez, the early appellative of him who is since known to us as de Villalobos, first saw the light of day in the year 1473 or 1474 after the birth of Christ." Further, that "Villalobos was twenty-four years of age or so when he published the 'Sumario'. If we allow but four years for the completion of so arduous an undertaking, it would have been begun A. D. 1494, the year which is generally stated as that in which syphilis was declared." Further, that "the next publication of which anything is known is the 'Congressiones' which bears date 1514." In speaking of the death of Villalobos he states that "the continuation gives a sad picture of his failing health and spirits, much as is betokened by the 'Cancion' (1542-3). It will not be supposed that his life was greatly extended beyond this period; it is a point however, which is not determined, there being no exact data."

Further, that "those biographical notices are much open to doubt which state that he survived up to the year A. D. 1560, no less than those which make him undertake the part of physician to Philip II, who succeeded to the throne A. D. 1556."

All the facts stated above would seem to strengthen the claim made that in the "Congressiones" the Library of the College of Physicians of Philadelphia has obtained a book of such excessive rarity that it can possibly be classed as unique.

CHARLES PERRY FISHER.



## BOOK REVIEWS

DES MEISTERS ARNOLD VON VILLANOVA, Parabeln der Heilkunst, Aus dem Lateinischen übersetzt erklärt und eingeleitet von Dr. Paul Diepgen, Leipzig, Johann Ambrosius Barth, 1922.

Among the outstanding men of the thirteenth century, that wonderful century which ought to redeem the Middle Ages from the stigma of Cimmerian darkness, is Arnold of Villanova. A roving Spaniard, he imbibed the culture of Italy and France, learning all there was to know in his day. It seems he studied medicine at Montpellier, probably also at Salerno and wrote a great deal, much more, indeed, than has come down to us. Even as with some men of our day, he preached things he did not practice. Like Polonius he was an adept at giving good advice, though intellectually he was worth a dozen Poloniuses. He has set down his teachings in the form of aphorisms, or parables as he calls them. They are now published in this little volume under review, by Professor Diepgen, than whom there is no more honest or enthusiastic medical historian living. In the historic town of Freiburg, in the shadow of one of the finest Gothic cathedrals in the world, Diepgen has created a school of medical history that might well be a pattern for us in this country.

At an age when men bowed in slavish obedience before Aristotle, Galen and Avicenna, Arnold of Villanova defended his own point of view, as is brought out clearly in the aphorisms. Many of these have a distinctly modern ring—for example:

He, who in his chosen branch, educates himself, not for science but for gain, becomes an "abortion."

A knowledge of names is essential to science, but no cure is ever achieved by a mere formula.

That mode of treatment is the best which achieves the desired end with the fewest means.

An intelligent and pious physician makes every effort to cure disease with proper foods rather than with drugs.

In this last statement Arnold proves himself to have been six hundred years in advance of his time. Another modern-sounding doctrine is that concerning individualization in the treatment of disease.

The parables cover a very wide therapeutic range, dealing with the indications for sweating, leeching, cupping, scarification, bleeding, etc. Among the surgical conditions discussed are dislocations, deformities of the spine and other parts of the body, fistula, hemorrhage, suppuration, empyema, inflammation of the joints, scrofula, goiter, etc. To a large extent all of these subjects are dealt with in a sane, common-sense spirit. Unfortunately, however, Arnold could not divest himself of a belief in astrology, differing in this respect from his greater contemporary, Moses Maimonides, who ridiculed the pretensions of the astrologers.

Anyone interested in what Henry Osborn Taylor calls "the medieval mind" will find great pleasure in reading Dr. Diepgen's translation.

DAVID RIESMAN.

ALBRECHT HALLER von den empfindlichen und reizbaren Teilen des menschlichen Körpers, Deutsch herausgegeben und eingeleitet von Karl Sudhoff, Leipzig, Johann Ambrosius Barth, 1922.

The Swiss nation has produced more scientists than poets. Somehow the beauties of nature have failed to call forth either great lyric, great graphic or great plastic art, a strange ethnic fact still wanting explanation. At the top of the list of Swiss scientists stands Albrecht Haller. Haller wanted to be a poet and sing of his native land, but produced only mediocre results. Gæthe, rarely intolerant, made sport of him.

In science, however, he attained the greatest distinction. He was a physiologist, an anatomist and a patient, honest experimenter. He is the father of the doctrine of irritability which has had such a great influence on the development of the myogenic theory of the heart-beat. He arrived at his fundamental conclusions after the most painstaking experiments upon one hundred and ninety animals. He made it his duty to report just what he saw, whether it suited his views or not, for, says he: "What difference does it make to me whether Nature declares herself in favor of one or another opinion?"

He showed that tendons and ligaments are insensitive and explained the contrary opinion of older writers on the ground that the word *νεῦρον* was formerly used indiscriminately for nerve, tendon and ligament.

Irritability is independent of nerve influence and of the mind and is a characteristic quality of muscular tissue. The most irritable of all is the heart, whose activity not even opium, which arrests all other movements, can affect. Irritability of muscle is an inherent property which we are as little able to explain as we are able to explain gravitation or the attraction of matter. In the little book edited by the indefatigable Sudhoff are reproduced two of Haller's lectures delivered at the University of Göttingen on April 26, and May 6, 1752. As the lectures were delivered and printed in Latin, they have not been readily accessible until now. Constituting one of the classics of medicine, their appearance in a German translation must be welcome to all interested in the history of medicine and in that of physiology in particular.

DAVID RIESMAN.

**FAMOUS CHEMISTS: THE MEN AND THEIR WORK.** By Sir William A. Tilden, F.R.S., D.Sc., Professor Emeritus of Chemistry in the Imperial College of Science and Technology. New York: E. P. Dutton, 1921.

Although but few of the famous men whom Sir William Tilden has chosen to illustrate

the progress of the history of chemistry were physicians, and the field in which they labored was not medical, nevertheless the effect of their researches has been so profound on the progress of medicine that this book is a distinct and valuable contribution to the history of medicine. In a brief preface the author states that it was not his intention to write a history of chemistry but take for his theme the evolution of the atomic theory as illustrated by the lives and researches of those celebrated chemists, who by their investigations developed the basis on which all modern chemistry rests.

Beginning with Robert Boyle, whom he terms the "Father of Chemistry," he next discusses a group consisting of Black, Priestley, Cavendish and Scheele, whom he terms "The Phlogistians," because of the theory of phlogiston which dominated all their views. The theory of phlogiston was overturned by Lavoisier's demonstration of the element oxygen. Humphry Davy greatly aided chemical progress by his researches in electricity. With a group of chemists, comprising Dalton, Gay-Lussac, Proust, and Berzelius began the definite formulization of the laws of combination and the atomic theory. Michael Faraday established the science of electro-chemistry. The exact definitions of molecule and atom were given by Avogadro and Cannizzaro. Then came Liebig and Dumas with their systems of chemical classification, Frankland and Williamson with their studies on the action and constitution of molecules, and finally a group composed of Mendeleff, Crookes, and Ramsay represent the latest investigations into the classification and nature of the elements.

Following out the foregoing grouping Sir William Tilden has provided the reader with what is, in spite of his disclaimer, an intensely interesting history of chemistry, since the time when it became a science, to the present time. Each of the chemists of whom he writes, marked an epoch in chemical science, and non-technical terms are

used in describing how the experiments were made by which the science was benefited.

The biographical sketches have a charm which adds greatly to the romantic life-history of some of the subjects discussed, and particularly is this evidenced in the biographies of Boyle and Lavoisier. The book is well illustrated with appropriate portraits and pictures of laboratories and apparatuses.

FRANCIS R. PACKARD.

SELECTED WORKS OF THOMAS SYDENHAM, M.D.  
WITH A SHORT BIOGRAPHY AND EXPLANATORY  
NOTES. By John D. Comrie, M.A., B.Sc., M.D.,  
F.R.C.P. Edin. William Wood & Co., New  
York. 1922.

This little book performs a great service to the medical profession in presenting to it the most practically useful of the writings of the "English Hippocrates." Although Sydenham's name is familiar to all physicians from their student days few of them have ever attempted to peruse his writings. In spite of the allusions we continually hear made to his teachings or methods these are usually culled at secondhand. In the preface Dr. Comrie states:

The extracts have been chosen in some cases because they describe conditions which Sydenham was the first to record, in other cases because they give delineations of disease that have become famous, and in other cases because they have a permanent applicability by reason of their sound common sense. The extracts quoted in this volume form about one-third of Sydenham's complete works.

The editor has certainly fulfilled in the ablest manner the aims he had in view and the reader will we think be led to desire a further knowledge of Sydenham and his writings. These wishes will be aided in their accomplishment by a complete bibliography which this volume contains, and by the most excellent account of Sydenham's life which

Dr. Comrie has compiled from various sources.

Sydenham was not only a great physician but also a soldier, serving as a captain of Cavalry with the Cromwellian army. Other members of his family were prominent in the Parliamentary party and at the Restoration it is supposed that Thomas Sydenham found it wiser to continue his medical studies elsewhere than in England and accordingly went to Montpellier. By 1661 he had found it possible to return with safety to England and begin the practice of medicine in London, where he soon acquired a very large practice and was greatly esteemed by his professional colleagues although he never applied to be elected a fellow of the College of Physicians of London. It is said he had a feeling that the enmity of a certain clique of detractors in the College might render his application unsuccessful.

As might be expected his association with the Puritan party also prevented him from ever acquiring an extensive clientele among the nobility of the court of Charles II. He numbered among his friends and admirers such men as Robert Boyle, John Locke, Dr. Mapletoft, Sir Thomas Millington, Sir Hans Sloane and Sir Richard Blackmore. It is curious that like his illustrious predecessor, Galen who fled from the plague in his time, Sydenham left London when the epidemic raged within it, though afterwards he wrote his observations on the few cases he had seen. As all know he died of gout, of which disease he had written a classic account.

The book is accompanied by a few well chosen and handsomely reproduced illustrations. It should be in the library of every teacher of clinical medicine and students should be encouraged to read it as an example of the fact that what is really great in the work of the old masters of medicine is as alive today as it was over two hundred years ago when it was penned.

FRANCIS R. PACKARD.

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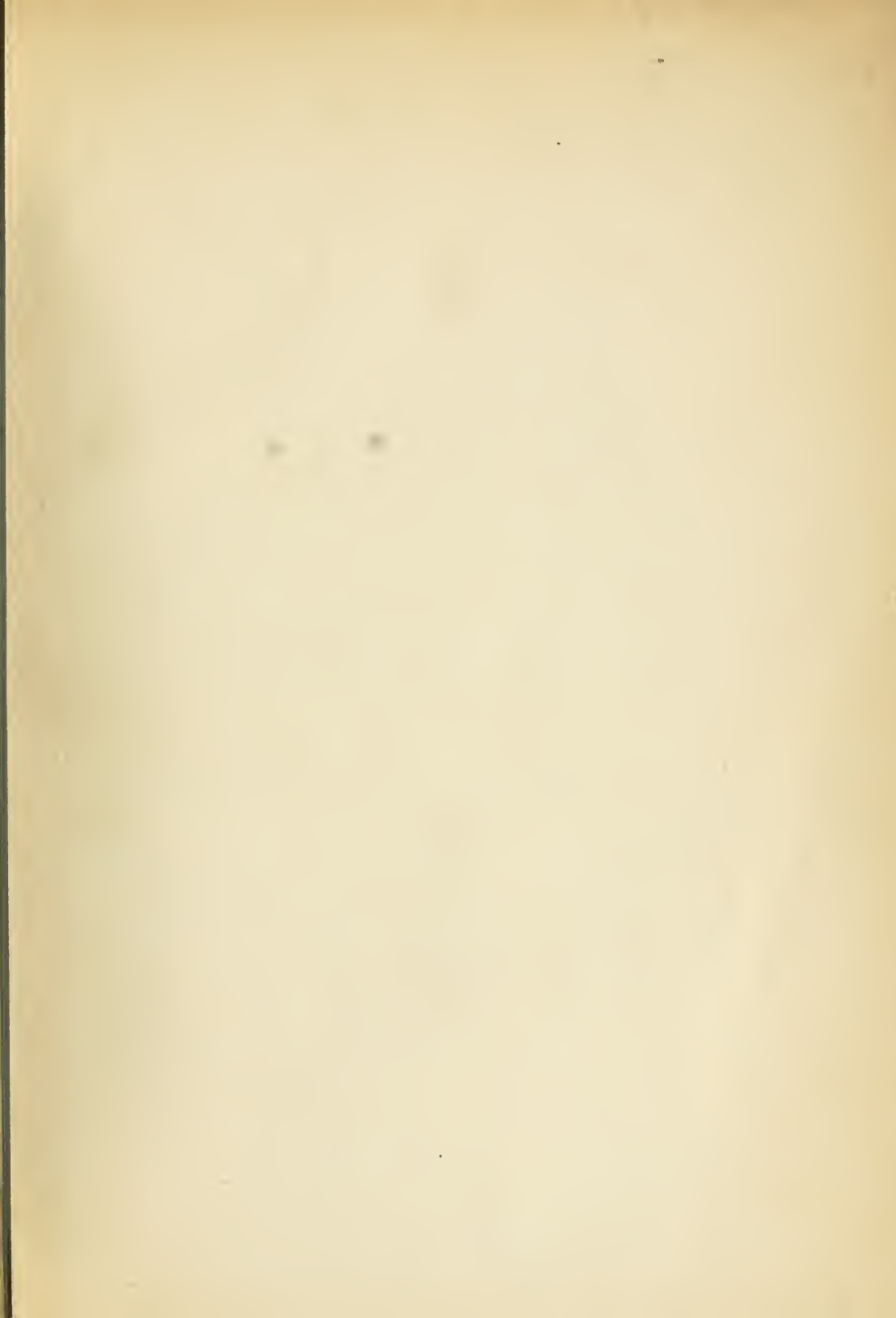
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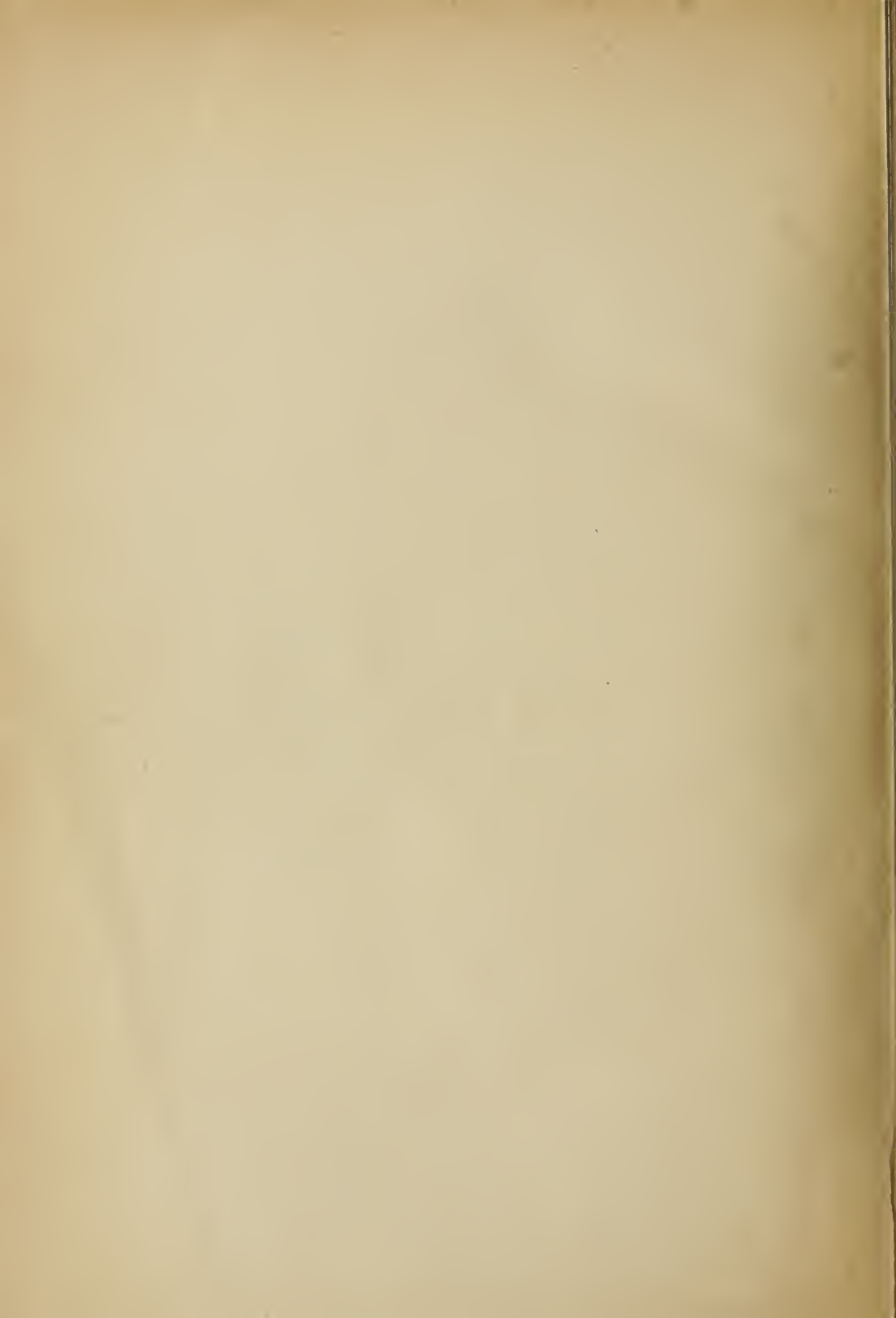
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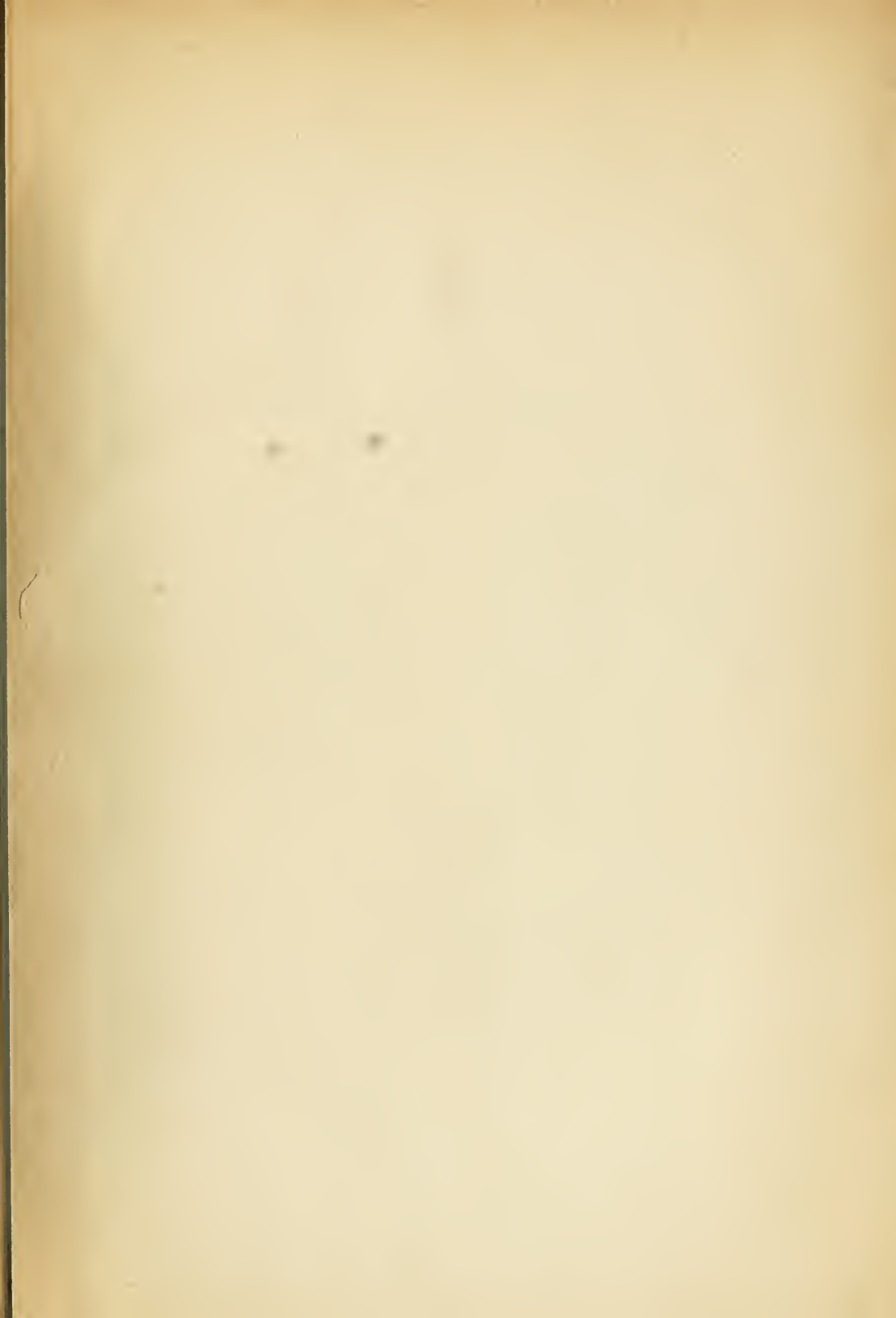


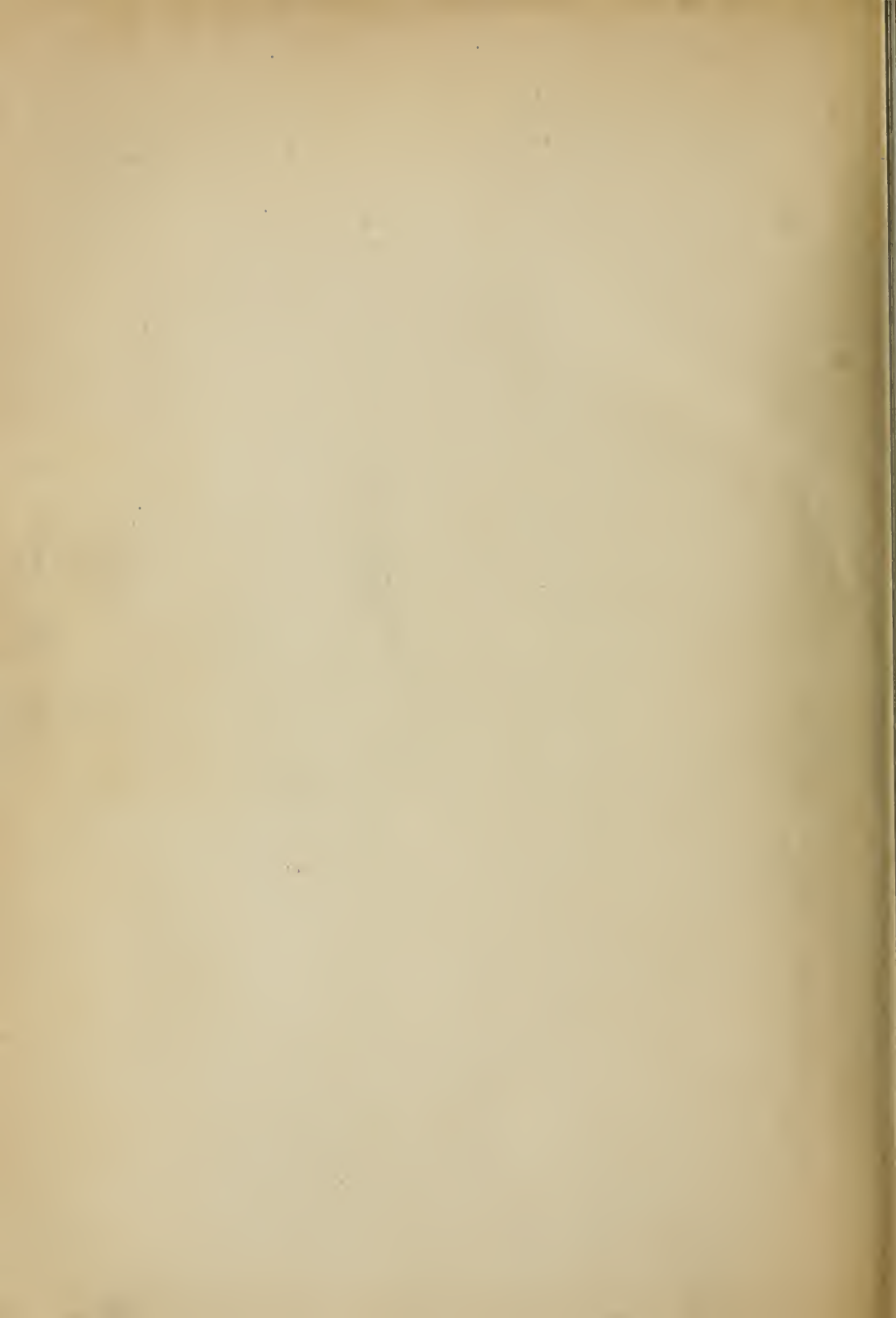
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