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## Address

### SPECIALISM IN ITS RELATION TO GENERAL MEDICINE.

ADDRESS OF CHAIRMAN OF THE SECTION ON LARYN-  
GOLOGY AND OTOTOLOGY, AT THE FIFTY-EIGHTH  
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"From the remotest past which science can fathom, up to the novelties of yesterday, an essential trait of evolution has been the transformation of the homogeneous into the heterogeneous." This statement of the great English philosopher, Herbert Spencer, is especially applicable to the development of medicine. The history of our art and science is a brilliant example of the truth of this assertion. Of humble origin, nourished and reared by superstition, for ages an integral part of theology and priestcraft, medicine has grown to be of so complex a nature that the combined intelligence of many sages is insufficient to grasp all its essentials. At first homogeneous, it is certainly now heterogeneous. "From an insignificant shrub a stately tree has developed, its numerous branches profusely laden with blossoms and fruits, and the widely-disseminated roots drawing their nourishment from a resourceful ground."

The development of the art and science of medicine was exceedingly tardy. Checked and hampered by the miracle workers, retarded by the lack of investigation and of scientific study, it was many ages before the dawn of actual progress. As early as 500 B. C. the Egyptians, during the time of Herodotus, practiced applied methods of healing different parts of the body, specialists being sent to the patient as his symptoms demanded special treatment. We read that at that time Arthothis, the first successor of Menes, founded the palace at Memphis and was the author of books on surgery. During the evolution of medicine which followed from the time of Æsculapius, the most prominent contributors to science among the different schools were those who devoted their time and energies to one particular branch of medicine, such as anatomy, physiology, pathology or therapeutics. Even the influence and teachings of Hippocrates were encompassed in an empiric system by his successors, and it was only in the luster that was diffused from the great Italian universities during the Middle Ages, in which anatomy and physiology were systematically taught, that there existed a ray of hope for the future. This was the period in which medicine and surgery were sharply separated. The physician deemed it beneath his dignity to undertake any kind of operation, and the barber was the surgeon, *per se*. Paré and his pupils had not yet appeared on the scene, and venesection was the universal operation. Practically the

earliest division of medicine into specialties was this separation of internal medicine from surgery.

An epoch then appeared in which the natural sciences began to exert their influence on the development of medicine. Practice, which up to that period had been conducted entirely on the basis of authority—the teachings and writings of the old masters—began to depend more and more on observation and research. Chemistry, the daughter of alchemy, developed into a rapidly-growing science. Biology was studied systematically, and natural science was invoked to elucidate many hitherto unexplained problems. Pathology was the logical outgrowth from anatomy. Histology and microscopic anatomy arose from research in physiology. Other departments were speedily developed, and by means of the results thus obtained it soon became impossible for a single individual to grasp all the essentials that had been thus evolved. This culminated in the origin of specialism and specialists. Although this tendency was at first combated by certain leaders of the profession, because it was thought that such a division would shatter the unity of scientific medicine, the opposition proved fruitless. Thus the addition of many new chairs to the university course in medicine became necessary, although the introduction of strict specialists as teachers is of more recent occurrence. It was not until near the close of the eighteenth century that a special course on surgery was taught in the German universities.

As era succeeded era and scientific truths were spread broadcast through the establishment of societies and medical journals and by the important discoveries of such men as Harvey, Sylvius, Sydenham, Cowper, Boerhaave, Bichat and others, specialism maintained its growing importance in the domain of medicine, until at the beginning of the nineteenth century we find one of our broader specialties, i. e., surgery, represented by Sir Astley Cooper and Sir Benjamin C. Brodie.

Strictly speaking, specialism and specialists have been known since the remotest ages. In the school of Alexandria numerous specialists were connected with the faculty. In the Middle Ages there were oculists, those who made a specialty of stone in the bladder, worm doctors, etc.; finally the exorcist arose, whose specialty consisted in driving out from the body the supposed evil spirit that was considered the cause of the disease.

As history repeats itself in medicine as well as in civic and political affairs, so the advent of any new discovery of note often exposes the discoverer to severe and drastic ridicule. Thus we find that Harvey, the discoverer of the circulation of the blood, was exposed for a long time to numerous indignities by his rivals, which must have been most difficult for one of his sensitive temperament to endure. When fifty years ago Manuel Garcia introduced the laryngoscope it was regarded by the general profession as a "physiologic toy," and its introduction into hospitals and dispensaries was accomplished with great difficulty, because of the popu-

lar prejudice existing at that time; whereas in the comparatively short era that has elapsed since then its invaluable aid in diagnosing abnormal conditions of the upper air passages is undisputed.

But all this bears no comparison to the modern development of specialism, for to-day we have specialists for a single disease, or even for a special method of treatment. It is impossible to deny that this tendency to specialization is justified to a certain extent, and is quite proper, for medical science owes many valuable discoveries and therapeutic methods to this tendency. Furthermore, the same tendency is noted in the arts and industries, and has proved to be an essential factor in our modern material progress. The continued growth in medical knowledge, the acquisition of great experience, and the development of improved methods of examination and treatment, all require intense study and careful research in special fields. In order to be thorough, therefore, it is necessary to limit our efforts.

The practice of medicine has gained greatly by this process of evolution of specialism. Every specialty has added something, either in diagnosis or in treatment, to the common fund of knowledge. The youngest child of medicine—bacteriology—has been a great contributor, and surely this is a specialty. All that we know of serum treatment and immunization, with perhaps the single exception of vaccination, has been contributed by this science, a science so recent that most of us were not even taught the essentials while in college. Diphtheria, even in its severest manifestations, has become manageable through the administration of antitoxin. Certain forms of sepsis are controlled with antistreptococcic serum; favorable reports are becoming more numerous in regard to tetanus antitoxin; hydrophobia is successfully combated according to Pasteur's method, and yet we are only in the incubation stage of serum treatment. Wright, of London, has opened up to our view a new field by his studies of opsonins, the opsonic index and methods of immunization.

Not merely has bacteriology aided us in the treatment of disease, but diagnostic methods have even been revealed. In illustration it is sufficient to mention the tuberculin test of Koch. Carried to its legitimate and logical conclusion, this has proved to be the initial reaction, which, when continued, has often demonstrated its therapeutic power to check tuberculous lesions.

Coincident with this advancement, organotherapy was inaugurated. We already know much in regard to the uses of the thyroid extract. We have found a specific for myxedema. Other organs have yielded extracts from which much is expected, such as the ovary, the adrenals and the brain or medulla.

Clinical medicine has now been divided into numerous specialties. We have specialists for diseases of children, for nervous diseases in general and for purely mental diseases, for diseases of the chest (heart and lungs), for diseases of the abdomen (stomach and intestines), for diseases of the kidney, while there are even specialists who treat nothing but diabetes, and so on *ad infinitum*. It has not yet been definitely recorded whether there are specialists for diseases of the umbilicus, although some one has suggested that this domain belongs to the "naval surgeon." But, seriously speaking, much good has been accomplished by this apparently ridiculous dismemberment of clinical medicine.

The special study of digestive diseases has developed a more exact understanding of the chemistry of the stomach. With the introduction of the stomach tube by

Kussmaul we have learned to recognize many obscure maladies and to give prompt relief. This was followed by the chemical examination of the gastric juice. It was found that hydrochloric acid was usually increased in amount in ulcer and absent in cancer of the stomach. This led to the early recognition of malignant affections of the stomach and the possibility of their removal by the surgeon.

Nothnagel's studies of intestinal affections became the stimulus which brought about the systematic examination of the feces. The chemical and microscopic examination of the feces is just as important in intestinal disease as is the examination of the sputum in affections of the lungs, or the examination of the urine in diseases of metabolism and of the kidneys. Thanks to the researches of Schmidt and Strassburger, the chemism of the intestine is no longer the enigma that it formerly was. The finding of occult blood in the feces is an immense gain in the diagnosis of many bowel conditions.

Otology has cleared up the relation of abscess of the brain to diseases of the ear. We now know that the otitis media complicating many general diseases is frequently the cause of meningitis, of brain abscess, and, by metastasis, of hepatic abscess. It is now clear that many a life has been sacrificed by waiting until pus has accumulated in sufficient quantity within the tympanic cavity to cause spontaneous rupture of the membrana tympani. Physicians are beginning to recognize the value of repeated aural examinations in an illness of doubtful diagnosis, and thus avoid the unpardonable blunder of treating patients for ailments, until a suddenly-discharging ear relieves the symptoms and clears the diagnosis.

Laryngology has contributed its share toward the common fund. Many obscure nervous affections are properly appreciated by the finding of a paralyzed vocal band. Aneurism of the aorta is often positively diagnosed by the recognition of the same condition. The laryngologist has taught us to appreciate the laryngeal crises of tabes dorsalis. He has shown us that asthma is often of reflex origin; that excision of the tonsils and adenoids frequently relieves deficient mentality and other sequelæ of suboxidation.

It would require a large volume to enumerate the benefits that ophthalmology has conferred on clinical medicine, and, in fact, there is a stately volume of 559 pages by no less an authority than Schmidt-Rimpler in the Nothnagel Series on "Diseases of the Eye in Connection with Other Diseases." Is it necessary to speak of albuminuric retinitis, of diabetic cataract, of choked disc in meningitis and brain tumor, of optic atrophy as a sequel of toxemia or of tabes? How often has headache been relieved by the correction of some error in refraction? And if we were to credit all that has been claimed, we might believe that quite a number of the world's geniuses behaved in an erratic manner because they were myopic!

The follower of one particular pursuit in medicine can not fail to realize at the very outset that as the organism is composed of individual organs or members, each of which, although possessing individual functions peculiar to itself, bears an intimate and constant relationship one with the other, the successful treatment of abnormal conditions of one individual organ or group of organs depends not alone on the correction of the abnormal condition itself, but on a careful study of the organism as a whole. The internist or practitioner of general medicine has, therefore, the opportunity to

amalgamate and co-ordinate all these heterogeneous medical facts by taking a bird's-eye view and surveying the organism as a whole. His is the master mind which sees in specialism the evolution of a "medical minutiae" which furnishes him with those special facts which he has not the time, inclination or ability to secure for himself, but which he knows are essentials. He calls on his fellows to supply him with the missing links, and gradually welds together a perfect diagnostic chain. He thus broadens the horizon of the specialist and illumines the future of medicine.

While it is a well-established fact that pathologic processes vary greatly in the different tissues of the body, depending on their structure, whether endothelial or epithelial, archiblastic or parablastic, yet certain morbid processes frequently occur (notably toxemia and the specific forms of disease) which affect the entire economy. In addition to this, the reflex influences exerted by diseases of different organs, and the various causes which modify the functions of the entire organism, all need to be taken into consideration as etiologic factors influencing the course of the local disease. Perhaps the specialist of the past has unwittingly erred in dealing with his specialty as though it were a distinct entity, often overlooking the fact that each tissue or organ is but an integral part of the whole; but during the past few years developments of the specialties, notably those of otology and ophthalmology, have done much to convince the family physician and the laity that those who limit their treatment to diseases of these special organs are far from being narrow or short-sighted in their conception of disease in general.

Another potent factor which is tending to develop specialism to-day, in its broader sense, is the fact that our medical schools have established such high-grade and rigid requirements of tuition that only men of good general education can enter on the curriculum. Many of our medical colleges now require compulsory examinations in special branches. One of our celebrated diagnosticians has truly said that "one year in a good hospital equals ten years in private practice in point of experience gained," and certain it is that ten years in private practice will prove an adequate foundation for the broad-minded specialist.

It is possible to enumerate the advance in every specialty and to show the contributions to the common fund, but this is all familiar knowledge to you. What, however, is the meaning of this tendency? Does it show that the days of the general practitioner are past? That we must all become specialists? That the unfortunate sufferer must have a corps of doctors for his nose, his throat, his ear, his chest, his stomach, etc.? Not at all! The analysis of this problem has quite a different significance. It indicates that the education of the medical man must be more thorough. It points out that the practitioner must have a wider general knowledge, and this can only be obtained by better instruction of the student while in college. It means more practice and less theory. It does not indicate that we can educate specialists in our general medical course, nor that we can make specialists in a six or eight weeks' postgraduate course. The general family physician must have sufficient learning to know when the time approaches to consult a specialist, and the specialist must have a broad enough general medical education not to become narrow, but to be able to appreciate conditions just a little beyond his own horizon. After all, the art of medicine is diagnosis. Diagnosis can not be taught in four or five years in a

medical course. It includes an appreciation of physiognomy and psychology. The classic dictum, "*Qui bene diagnoscit, bene curat*," still holds true.

As reports of new discoveries and new methods of treatment are constantly being made and each individual branch of medicine becomes the seat of a vast amount of necessary knowledge, the fact must become evident to the general practitioner that to perfect oneself in all branches would be an utter impossibility. He can not fail to recognize, therefore, the equally important fact that when years of tireless study and energy are concentrated on one special branch of medicine, the physician who devotes himself to this special study must needs be more capable of diagnosing and treating successfully the diseases comprised in that specialty. To quote from an address on the subject by an eminent authority: "It is not a sign of strength, but of weakness, if a practitioner, misguided by a false sense of shame, obstinately refuses to recognize that he has arrived at the end of his own powers, and if with equal obstinacy he refuses to let his patient have the benefit of advice in conjunction with himself."

There is not the least doubt that the public is fast recognizing the fact that specialism is a valuable and, at the present day, indispensable adjunct to general medicine. This is, perhaps, emphasized by the fact that until within the last decade men were graduated as full-fledged M. D.'s who had absolutely no compulsory, and little volitional, instruction in the special branches of medicine, i. e., otology, rhinology, ophthalmology, gynecology, dermatology, proctology, etc., and who at the time of their graduation could not diagnose suppuration of the middle ear from a furuncular abscess, hypertrophic rhinitis from a nasal spur, or eczema from acne. It can be easily understood how patients falling into the hands of such graduates would fail utterly to receive any benefit, and thus would be compelled to change medical advisers or to consult a specialist. Again, the busy general practitioner can not well take the time, even if he has the ability, to make the prolonged examinations which are so necessary in special branches, notably that of ophthalmology.

In the praiseworthy desire to benefit humanity by concentration and specialism, however, let us not forget that the general physician has been and always will be an indispensable factor in the community in which he lives, and whom he willingly serves to the best of his ability, often at the sacrifice of his own comfort and health. All honor to him who has served faithfully and well, who has studied the histories, idiosyncrasies and temperaments of his patients, and has advised and comforted them through the dark hours of affliction. His ripper knowledge, which comes from a school without books—the school of experience—can never be gainsaid, nor his place usurped in the hearts and minds of right-thinking men, and, as specialists, let us deem it a privilege, nay, an honor, to assist and to cooperate with him at all times and under all circumstances, and in any way within our power.

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**Learning to Use the Ophthalmoscope.**—To facilitate practice in the use of the ophthalmoscope, Dr. William A. Fisher (*Ophthalmic Record*, March), president of the Chicago Eye, Ear, Nose and Throat College, has arranged a little artificial eye chamber with an iris diaphragm in the front, with an arrangement at the rear for inserting disks on which are represented, in natural colors, various diseased conditions of the retina. He thinks that this contrivance will aid students to become proficient in the use of the ophthalmoscope.