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SPECIALISM IN SURGERY

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SPECIALISM is defined as "devotion to a special department of medicine or surgery" (Dorland). A specialist according to Webster is one who devotes himself to a particular branch of a profession. Perhaps the best known description of a specialist is that ascribed to Dr. Nicholas Murray Butler, "One who learns more and more about less and less." Unfortunately the latter description is too often a fitting one.

Specialism in medicine is almost as old as medicine itself, and reached a high degree of development in Egypt, whence it was carried by Egyptian physicians to Persia; according to Herodotus,¹ Darius (King of Persia 521-485 B.C.) had at his court, Egyptian physicians whom he considered the most skilled in the world. Herodotus also stated, "Medicine is practiced among them on a plan of separation: each physician treats a single disorder, and no more; thus, the country swarms with medical practitioners, some undertaking to cure diseases of the eye, others of the head, others again of the teeth, others of the intestines, and some those which are not local."

Medical specialism was also rife in ancient Greece and Rome, but during the Middle Ages it all but disappeared.

Specialism now may be said to be founded upon a somewhat more rational basis than was that which developed in ancient Egypt, Greece, and Rome, in that the various modern specialties have usually been initiated by the invention of special instruments or techniques. Dr. Samuel Harvey² states in the introductory paragraph of his excellent small monograph, "The History of Hemostasis," that "the history of surgery is largely written in the record of its technical advances." This is true, perhaps too true. However, certain technical developments, for example, those having to do with the control of hemorrhage, pain, and infection, were, of course, necessary before surgery could progress.

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Ophthalmology was the first well-defined modern specialty. Although a few outstanding physicians such as Sir William Bowman had devoted the greater part of their time and energies to the study and treatment of diseases of the eye, the specialty did not really take hold until the ophthalmoscope was invented by von Helmholtz in 1851.

The development of the cystoscope by Nitze in 1877 played a similar, though somewhat less important role in the development of urology.

The development of thoracic surgery has been influenced by a considerable number of technical discoveries and developments such as the discovery of x-rays by Roentgen in 1895 and their application to thoracic diagnosis, the development of the bronchoscope by Killian in 1897, the development of special techniques for administering anesthesia, such as the Sauerbruch negative pressure chamber, the positive or negative pressure chamber, of Willy Meyer, and, finally, the introduction of intratracheal anesthesia by Meltzer and Auer in 1909.

Although ophthalmology made steady progress in this country after 1851, specialism in general developed slowly in America until the last quarter of the 19th century. In 1876, one of America's most illustrious surgeons, Dr. Samuel D. Gross, stated "it is safe to say that there is not a medical man on this continent who devotes himself exclusively to the practice of surgery, and that American medical men are general practitioners and cover the entire field of medicine, surgery and obstetrics." (Bevan.³)

However, in that same year, a paper published in the *Virginia Medical Monthly* by Dr. Joseph Sandes⁴ of Nashville, Tenn., indicated that some progress in specialism was under way. Dr. Sandes' paper was entitled "The Relative Position Existing between the General Practitioner and the Specialist." He first read two resolutions concerning specialism which had been passed by the American Medical Association in June, 1874: (1) Resolved that this association recognize specialties as proper and legitimate fields of practice; (2) Resolved that specialties shall be governed by the same rules of professional etiquette as have been laid down for the general practitioner. Dr. Sandes discussed the advantages of specialism and warned his audience that the general practitioner must not be arrogant toward or look with disdain on specialists.

Although the American medical profession was slow to adopt specialization, its subsequent development was extremely rapid in this country. Somewhat less than sixty years after the passage by the American Medical Association of the first resolutions concerning specialism, Bevan found that one-third of the physicians in America professed to be specialists. As might have been anticipated, because of the great importance of technical procedures in surgery, the surgical specialties developed more rapidly than did those in medicine. So rapidly has surgery grown and so thoroughly has it been subdivided that Rankin⁵ in 1937 made the prophetic statement, "the general surgeon of today lives in the afternoon of his career." It is interesting to contrast this statement with a statement made in 1904 by Professor Halsted⁶ that "every important hospital should have on its resident staff of surgeons at least one who is well able to deal not only with any emergency that may arise and to perform any operation known

to surgery, but also to recognize the gross appearances of all the ordinary pathologic tissues and lesions." Few surgeons of today could meet the qualifications described by Professor Halsted.

Barker⁷ warned that specialization might pass beyond the limits justified by the stage of development of medical science. The division of surgery has proceeded so rapidly in recent years that one may wonder if it has reached such limits.

The advantages of specialism were well stated by Barker as follows: "The increasing development of specialism in medicine is the logical continuation of the great process of division of labor with concentration upon restricted tasks that has characterized social and economic organizations in general as civilization has advanced. The differentiation of tasks keeps pace with the growing complexity of society to the great advantage both of single workers and of society as a whole. For in the first place, specialization increases productivity. When tasks are subdivided, the division results in operations that are easier of performance than those of undivided work; moreover, work is made easier by frequent repetition. Thus specialization in medicine and surgery as in commerce and industry is a device that has greatly increased the total results of professional labor."

The certain knowledge which comes from intensive study in a limited field and the facility with which one carries out frequently repeated techniques are advantages which may not be overlooked.

Bishop Spalding,⁸ in his excellent essay on professional education, made the following terse statement of the dangers of specialism: "Division of labor makes everything cheap—man first of all; and the increasing tendency to specialization may have the effect, not only to lower the standard of professional life, but to interfere with the development in the professions of strong, many-sided personalities, interesting in themselves, and lending dignity to their callings; who, while they are masters in their several departments, are none the less at home in the whole world of human interests and speculations."

Many writers have indicated that specialists are prone to suffer from progressive narrowing of their fields of vision. This is a serious defect in any profession. In medicine it may be fatal. Plato⁹ was aware of this danger, for, in "Charmides," he has Socrates relate a conversation which he had had with a physician of the Thracian king, Zamolxis. The physician quoted Zamolxis as saying, "the reason why the cure of many diseases is unknown to the physicians of Hellas is because they are ignorant of the whole, which ought to be studied also; for the part can never be well unless the whole is well."

Osler,¹⁰ in his inimitable way, directed attention to the sclerosing effect of specialization by reciting the story of the old Scotch shoemaker, who, in response to the Dominie's suggestions concerning the weightier matters of life, asked, "D'ye ken leather?"

Gregg,¹¹ in his "Narrative for a Specialist," has facetiously portrayed the results of this narrowing influence.

Professor Geoffrey Jefferson¹² denies that specialization is necessarily limiting to the mind and general scientific culture of the individual, who, he insists,

is still a physician and must remain one. One will agree that specialization does not necessarily result in a narrow outlook, but one must admit that it often does precisely that. Limitation of vision is an especially serious attribute for a physician to have, for the human body is an extraordinarily complicated mechanism with an amazing interdependence of function between the various parts. It is to be expected, therefore, that derangement of function in one organ or tissue may affect the functions of other organs and tissues, perhaps widely separated anatomically from the original offender.

On first thought one might conclude that even though individual specialists were unable to view the body as a whole, the difficulty could be overcome by consultation between specialists in the various fields, but this will not prove to be a satisfactory solution unless at least one of the consultants is able to comprehend the over-all picture. It appears, therefore, that the only satisfactory solution is to develop specialists, trained in the basic sciences and with a broad view of clinical medicine, yet proficient in the special techniques applicable to their particular field. This is admittedly a large order, but one which is possible of execution, as has been amply demonstrated by many members of this association and by members of other specialty groups. Investigation will show that a large proportion of those specialists who have done outstanding work as investigators, as teachers, and as clinicians, have been well grounded in one or more of the medical sciences or have been broadly trained in clinical medicine or surgery before restricting their work to special fields.

Such eminent clinicians and educators as Bevan,³ Cheever,¹³ and Daniel Fiske Jones¹⁴ have stressed the necessity for broad preliminary training in either general medicine or general surgery preliminary to specialization. That this is desirable may be accepted without question, but it is improbable that this is the only satisfactory road to specialization.

Osler¹⁰ felt that "the most dangerous members of the medical profession were those who were born into it, so to speak, as specialists," and advised preliminary training in one or more of the medical sciences especially in pathology and physiology as the most desirable preparation for entrance either into one of the broad clinical fields or into a clinical specialty. Few would disagree with this point of view, for those so trained develop a broad perspective which they usually retain even though their clinical training may leave something to be desired.

It is possible for hospital services in the specialties to be so conducted that physicians trained on those services will develop and retain a proper perspective toward the broad field of medicine, and will appreciate the fundamental relationship between their specialty and medicine as a whole. In order for a specialty service to so operate, certain requirements must be met: the chief of staff and his associates must be broadly trained in the medical sciences and in clinical medicine; frequent consultations must be had with the other services, especially with the general clinical services, and staff rounds and staff conferences should be held in conjunction with representatives from the medical science departments; patients must be studied from all angles and not viewed as otherwise

empty bodies containing only a heart, a pair of lungs, or a prostate gland; the special techniques applicable to the particular specialty, naturally, must be taught, but not overemphasized; finally, some fundamental research must be carried on, lest the department become sterile.

There are such properly conducted services in operation in this country, which are training, and should continue to train, well qualified specialists. Other good services can be developed, but probably only in limited numbers, because, men of the character, ability, and training, necessary for the proper direction of such services are not to be found in large numbers.

It would seem, therefore, that for the present, properly trained specialists cannot be produced in sufficient numbers by the specialty services alone, but only through cooperation between the specialty services, the general clinical services, and the medical science departments.

One cannot discuss the problems of specialism today without considering the specialty boards. Up to now the specialty boards have unquestionably had a desirable effect on the development of the various specialties. The average period of training of specialists has been increased, and, in the main, the character of training has been improved.

If the various boards continue to move in the right direction, the net result will be of tremendous benefit to the specialties, to medicine as a whole, and to the public.

Unfortunately certain dangerous trends are already becoming apparent. Key¹⁵ and Karsner,¹⁶ in this country, have recently published excellent papers dealing with some of the problems which have already arisen and with other problems which are likely to arise as a result of the influence of the boards. Walshe¹⁷ of England has presented the problems arising in that country as the result of granting special diplomas in the various branches of medicine. These problems are essentially of the same character as those developing in connection with the specialty boards. Too specific requirements as to the exact period of training which candidates for the boards must have in various divisions of the specialty is undesirable. Failure to give credit for work done in other branches of medicine, even in departments closely allied to the specialty in question, is undesirable and will of necessity lead to a dangerous form of inbreeding. The sclerosing effect of narrow training on the individual is serious but the training of succeeding generations of specialists by those who are constantly becoming more narrow in their outlook will almost inevitably lead to disaster.

Not only is regimentation in training a danger, but a similar danger is evident in relation to practice, in that there is a trend on the part of some of the specialty boards and certain associations of specialists to require absolute limitation of practice to their particular specialty. Unless physicians are allowed, within reasonable limits, to follow the lead of their inclinations and abilities, the field of practice will become less stimulating and they will become less productive. Sigerist¹⁸ has pointed to the results of regimentation in the practice of medicine in Germany. May we take warning and halt this trend toward regimentation in training and in practice. Once regimentation is established by custom, there is the everpresent danger that it may be established by law.

I sincerely hope and believe that the members of this association will take the broad view in regard to the training of thoracic surgeons and may we not be taken in by the overenthusiastic advocates of arbitrary and rigid restrictions on practice.

REFERENCES

1. Sir William Osler: *The Evolution of Modern Medicine*, New Haven, Conn., 1921, Yale University Press.
2. Dr. Samuel Clark Harvey: *The History of Hemostasis*, New York, 1929, Paul B. Hoeber Inc.
3. Dr. Arthur Dean Bevan: *Tr. Am. S. A.* 51: 1, 1933.
4. Dr. Joseph Sandes: *Virginia M. Monthly* 2: 419, 1875-76.
5. Rankin, Dr. F. W.: *Tr. South. S. A.* 50: 4, 1937.
6. Halsted, W. S.: *Surgical Papers*, Vol. II, Baltimore, 1924, The Johns Hopkins Press, p. 526.
7. Barker, L. F.: *The Young Man and Medicine*, New York, 1928, The Macmillan Company, p. 31.
8. Bishop, J. L. Spalding: *Things of the Mind*, Chicago, A. C. McClurg and Co., Chap. 4, p. 103.
9. *Dialogues of Plato*: Vol. IV, Charmides, p. 12, New York, Bigelow, Brown and Co.
10. Osler, Dr. William: *Remarks on Specialism*, *Arch. Pediat.* 9: 481, 1892.
11. Gregg, Dr. Alan: *Narrative for a Specialist*, *Am. J. Psychiat.* 100: 191, 1943-44.
12. Jefferson, Prof. Geoffrey: *The Future of the Specialties*, *Brit. J. Radiol.* 15: 283, 1942.
13. Cheever, Dr. David: *Tr. Am. S. A.* 59: 1, 1941.
14. Jones, Dr. Daniel Fiske: *Tr. Am. S. A.* 52: 1, 1934.
15. Key, Dr. J. Albert: *The Education and Certification of Orthopedic Surgeons in the United States*, *J. Bone and Joint Surg.* 29: 1, 1947.
16. Karsner, Dr. Howard J.: *A Pathologist Scrutinizes the Specialty Boards*, *J. A. M. A.* 117: 1, 1941.
17. Walshe, F. M. R.: *Some General Considerations on Higher or Postgraduate Medical Studies*, *Brit. M. J.* 2: 297, 1944.
18. Sigerist, Dr. Henry E.: *Am. Med.*, New York, 1934, W. W. Morton and Co., p. 173.