

THE TREND OF SURGERY¹

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THE medical historian of the future probably will refer to the past fifty years as marking an era of unprecedented advance in all branches of medicine, and will hazard the prediction that it is doubtful if equal progress ever again will be made in the same period of time. Certainly in the field of surgery such a prediction seems well founded. In this era the great accomplishments of surgery have been made because anesthesia and asepsis made possible the application of knowledge of pathology, physiology, biochemistry, and roentgenology, and in turn a deliberate, scientific, and safe approach to every part of the body. Much of the extraordinary development in the knowledge of disease can be attributed to the fact that surgery provided a method by which the "pathology of the living" could be completely revealed and its effects studied. In the beginning of this era surgical exploration all too frequently revealed a condition which was obviously the terminal stage of a lesion that might have been satisfactorily dealt with in its incipency. Surgery, therefore, can be credited with giving the impetus to clinical and laboratory methods of identifying lesions in the early stages of their evolution; in some fields, surgery made possible recognition of the conditions under which lesions may occur. Thus, surgeons of all countries have added to knowledge of disease in its various stages, and the ready availability of reports of observations made the world over has placed the present era in surgery in so distinguished a position.

Innumerable examples could be cited to illustrate the progress of surgery during this period. Major surgical procedures are now carried out with such safety that the predictions of surgeons only a few years ago are forgotten. The great surgeon Langenbeck, when Billroth was endeavoring to find a safe method of resecting the stomach for cancer, stated that he looked on the attempt as "only a quicker way of taking out of the world a patient whom it is impossible to save." Yet today this operation is routinely performed, with a resulting definite percentage of cures in cases of malignant disease and with consequent restoration of health to those who have benign lesions. Again, it is a far cry from the times of John Hunter who said, "To perform an operation is to mutilate a patient we cannot cure; it should therefore be considered as an acknowledgment of

the imperfection of our art." The most significant trend of surgery has been the attempt to control, ameliorate, abort, and prevent those conditions which are known, or suspected, to be dependent on disturbed physiological processes. In the treatment of peptic ulcer, for example, the attempt to achieve by surgical measures the ideal in management of the disease—to effect permanent inhibition of a hyperactive function, particularly of the secretory mechanism—has resulted in the employment of a number of procedures to bring about such control in the simplest and most physiological way. The surgery of the sympathetic nervous system is an entirely new approach to the treatment of those diseases which are characterized chiefly by vasomotor spasm, and the future developments in this field of surgery probably will be as startling as those that have already been made. Again, the attempt to employ a similar method of approach in treatment of those conditions which may be dependent on normal or abnormal activity of the ductless glands, may open up great possibilities for the surgical treatment of a wide variety of conditions which may be attributable primarily to altered physiological function, particularly of the vasomotor system.

The factors contributing to these great advances in surgery have come from every field of medicine. As already has been pointed out, surgery, in revealing the actual disease, gave the initial impetus to a more exact knowledge of disease. But second only to surgery have been the roentgen rays. The place of roentgenology in the diagnosis of lesions in every region of the body cannot be overestimated. Not only have these rays made possible detection of lesions before any method known at present can detect them, but, with biopsy and knowledge of cellular differentiation, accuracy in prognosis has been immeasurably improved. The fact that by roentgen rays lesions can be identified before clinical manifestations are present, has been an enormous benefit to mankind in making possible early and effective treatment. The recognition of pulmonary tuberculosis, of cancer of the gastro-intestinal tract, and of lesions of the skeletal system are examples to substantiate this fact. From the clinical and experimental laboratories have come those innumerable exact tests and observations which, when employed intelligently along with careful study of the

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patient and the subjective and objective signs of disease, have added so much to diagnosis, prognosis, and successful therapeutics. These factors in surgical progress, therefore, have been applied in strengthening the base on which successful treatment may be founded, namely, an accurate diagnosis. It is certainly true that modern medicine has brought diagnosis more nearly to an exact science than ever before.

The medical profession of America has played a prominent rôle in initiating and participating in the advances which have brought surgery to such a high level. Haggard, in his address as retiring president last year, not only emphasized this fact but drew attention to the many important contributions from pioneer surgeons living in communities remote from medical centers, and to the superior opportunities which such environments afford. Again, in North America the development of those collateral fields of medicine which have made modern surgery what it is today, has been conspicuous. This development has come about chiefly through specialization. Whether or not medicine has become too highly specialized, it always will be true, as Herbert Spencer pointed out, that it is only through specialization that progress can take place. Specialization in establishing standards always will be necessary to determine the possibilities in any field of medicine, and for this reason specialization always will be the forerunner of improved methods of practice. The influence of those engaged in special surgical fields is seen throughout America. In the smaller hospitals, which have been such an important feature in the development of medicine on this continent, the character of the work, whether the hospitals are staffed by specialists or not, gives unmistakable evidence of familiarity with the best diagnostic and therapeutic measures, knowledge of which has been acquired through travel, intensive graduate courses, and study of the medical literature. The improvement of medical practice in the smaller communities has been such that the care of the sick in America is not excelled in any other country of the world.

The situation which confronts the recent graduate in medicine who desires to become a surgeon is a perplexing one, for even a superficial knowledge of the extent of the field of surgery will, or shall, make him uncertain as to how much of this field he can master. Whatever his choice may be, there is more and more evidence that he realizes the necessity for prolonged training to equip himself sufficiently for practice in either general surgery or in any special branch of surgery. While it is true that because of natural aptitude and

continuous and conscientious study many surgeons in America have become outstanding without a graduate apprenticeship, yet the great advances which have been made in recent years in all branches of medicine have rendered it more and more difficult for anyone to acquire real competence without an adequate training; so the quality of medical service in any community is in direct ratio to the training of the professional personnel.

Just as the need for special training affects the young surgeon, so also does it bear on the whole practice of surgery. The future of surgery in America depends primarily on the adequate training of those aspiring to a career in the field. To demand, however, a protracted training while the opportunities for it are so unorganized as at present is not consistent, as recently has been inferred in an editorial in the *Journal of the American Medical Association*:

"Growing demands for training in special fields of medicine have given greater significance to the available types of graduate instruction. To present, as clearly as possible, a picture of existing opportunities for advanced study, the Council on Medical Education and Hospitals has obtained reports from all universities having faculties of medicine. Two universities have separately organized graduate schools of medicine. Twenty-nine report that they offer systematic courses of instruction for physicians. An apprenticeship type of training through residencies or fellowships is available in fifty-three institutions. Extension teaching of a less formal sort is conducted by nineteen schools, and as many more do not engage in any form of post-graduate work. Graduate teaching is a heavy tax on the resources of an institution, and not many of our schools are equipped to engage extensively in this work. This is particularly true of the intensive courses demanded by physicians who have already engaged in practice. Generally speaking, they are able to pay in cash for what they want, but because of greater earning power and social responsibilities, they cannot devote any unnecessary time to this phase of training. Younger men who have never practiced may be willing to pay for experience with time and services after the traditional manner of apprentices."

The evident need should be the incentive to make available sufficient opportunities for a fitting training in surgery.

From what has been said, it is evident that the proper classification of undergraduate and graduate teaching in surgery is the first essential. Undergraduate teaching in surgery should be restricted

to the teaching of fundamentals and general principles, while graduate teaching should carry out the training for practice in surgery through surgical residencies or fellowships. The granting of the right to practice surgery by state and national boards which require no practical evidence of competency, has been unfair both to the recipient of such a right and to the public. The American College of Surgeons was the first organization in the country to attempt to correct this evil by requiring evidence of experience and proficiency before implying it. The College indirectly has done much to keep before the attention of the profession the fact that an undergraduate course in medicine and a year's internship do not and cannot give sufficient opportunities for training in surgery to warrant certification of competency in surgery in these days.

The question, therefore, of the training which shall be required of the surgeon becomes of immediate interest and of particular importance in America, since in respect to requirements we cannot claim to be as advanced as are some other countries. The advantages which may grow out of our freedom from long established customs in surgery may be outweighed by the evils which may follow such freedom. That the medical profession is well aware of our shortcomings in this respect is seen in the establishment of qualifying boards for many of the surgical specialties. The methods adopted and practiced by the qualifying boards already formed have so much to commend them, that it is probable that in all fields of medicine similar boards will be set up to designate those qualified to announce themselves as specialists in the various fields. The effectiveness of such qualifying boards is dependent on the approval, support, and recognition of organized medicine, and it is gratifying that such co-operation is being given.

The distribution of population in America creates another problem for investigation, namely, it should be determined in what way the education of surgeons can be adapted to the varying needs of small and large communities. A graduate training in surgery of three, four, or five years after completion of an internship is, to a large extent, not applicable in the small community, and it seems imperative that some distinction be made in the requirements that various communities may present. The Council on Medical Education and Hospitals of the American Medical Association, and the American College of Surgeons, in respect to establishing minimal standards for medical schools and hospitals, have already done much to solve this problem in proving that the

hospital which cannot, or does not, acquire these minimal standards and does not select its surgical staff on the basis of competency and character, sooner or later loses some of its standing in the community. With a better distribution of well equipped hospitals, the adequately trained young surgeon will find greater opportunities for applying his knowledge and ability. The surgical residencies which are available to the young graduate today seem to be sufficient, at least in number, to serve the need of those who settle in the relatively small community with the responsibility of dealing with those emergent surgical conditions in which the life of the patient depends on recognition of the emergency, a knowledge of what should be done, and the ability to do it. In the most recent study of the Council on Medical Education and Hospitals of the American Medical Association, there are listed 442 surgical residencies in the hospitals of the United States, and of these 73 per cent are for a period of a year. A twelve months' surgical residency following an adequate internship should at least determine whether the resident possesses superior qualifications to justify continuing in a more extensive training, or whether the knowledge he has acquired could be applied best in the smaller communities. The investigations of medical schools, internships, and hospitals, which have so improved medical education and practice in this country, could well be extended to include a study of the training which existing residencies offer.

The trend of surgery in America can be viewed with optimism. In every surgical field treatment is becoming more efficient, and the willingness to discard apparently well established, major surgical procedures for simpler methods has resulted in some of the most remarkable advances of modern therapeutics. The irradiation of benign and malignant tumors and other lesions has completely altered the management of some of the most serious conditions, and there seems little doubt but that the applicability and the effectiveness of irradiation will steadily increase. The injection of sclerosing substances in treatment of various conditions, and the development of transurethral surgery are notable examples of a trend of modern surgery particularly obvious in America, namely, the search for methods which will reduce morbidity and mortality to a minimum. Such advances have come from intensive effort expended by those highly skilled and widely experienced. It is in the co-ordination of these special fields and in the evaluation of various therapeutic measures that the American College of Surgeons has one of its most important functions.

In working out the problems touched on here, the American College of Surgeons should play an important part. The purposes of the College are the highest, for its every activity is designed to elevate surgery and to improve constantly the quality of surgical service made available to the people of America. In the fulfillment of these purposes a great debt of gratitude is due to the founders of the College, and to the vision, courage, and extraordinary organizing ability of its late Director General, Franklin H. Martin. It is not generally appreciated that the formation of a College of Surgeons in America twenty years ago could be undertaken only on the principles laid down by its founders. The chief of these principles concerned Fellowship in the College. To meet existing conditions, the requirements set up were characteristically American; the qualifications for Fellowship were based on proficiency and character, attested by those familiar with the candidate

and his work. The added provision that a minimal period of eight years must elapse after graduation from medical school before applying for Fellowship, largely eliminated the defects of any system which would grant Fellowship on the basis of scholastic standing only, for the most profound knowledge of basic sciences and of the theory of surgery does not necessarily make a competent surgeon. Again, the College has given support and encouragement to its Fellows by the standardization of hospitals, by providing opportunities for attending clinics in medical centers, and by taking its part in the program of public education on which organized medicine has embarked. The accomplishments of the American College of Surgeons are recorded in the status attained by American surgery today, and it is to be hoped that, in any modifications of the policies of the College, the ideals on which it was founded will always be retained.