

others it has no standardized status. Further, this being the case in the highest group, it is fair to infer that still less instruction in this subject is given in the other groups. Therefore, it becomes apparent that the opportunities in this country for the systematic study of medical roentgenology are very meager.

Yet the Council on Medical Education of the American Medical Association enumerates "Roentgen-ray apparatus" among the "essentials of an acceptable medical college," and the Association of American Medical Colleges in its "proposed minimum standard for clinical equipment," says, "Adequate rooms and equipment must be provided for x-ray work and for electrotherapeutics." Highly complicated technical apparatus certainly implies technical instruction in its use, its limitations and its dangers.

As a branch of medicine, roentgenology is in touch with all other branches of medicine. Although it is associated more closely with some of them than with others, experience has demonstrated its possible service to the other medical specialties, and the growing dependence of these specialties on roentgenologic findings. Roentgenology is a new science but it has already made contributions of value. In view of the extensive and increasing applicability of the Roentgen rays both in diagnosis and therapy, has the time not fully come when some adjustment should be made in American medical colleges which will give to roentgenology its logical place in medical instruction and research? If it is not taught systematically, how can the best results be obtained in actual practice? Can any American medical college otherwise well-equipped afford to ignore it? Does roentgenology not deserve a definite status in the medical curriculum?

PUBLIC HEALTH WORK AS A CAREER *

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The medical profession has always made a strong appeal to young men of fine character, as offering a career unsurpassed in opportunities for real human service. It is essentially that type of profession. To-day, with the rapid development of the science of preventive medicine, the opportunities are still greater, and the appeal to young men of high aims stronger than ever before. Particularly is this true in the comparatively new field of public health service.

This is the day of the efficiency expert. The public health officer is an efficiency engineer in the most important department of human life—good health. He is a constructive searcher after truth. Instead of tamping and patching up the machinery here and there, he builds anew. He has to know the whole works, not merely one process; he deals with society as a whole, instead of with a few separate units. Translated into the terms of his calling, his task is to keep all the people well and strong, instead of concerning himself only with the unfortunates who come to him in dire necessity. Economically, he is a wholesaler, free and unrestricted in his operations, dealing in a commodity everybody wants, rather than a retailer with whom, generally speaking, nobody really wishes to do business. He is the servant of the community, tied to no

man, but free to do his duty as he sees it, whether that duty be to purge a Cuba of yellow fever, clean a pestilential Panama, or wipe out the double scourge of hookworm and typhoid from some rural community. The public health officer is dependent for his material rewards, not on haphazard personal fees, but on the good faith of a public which is fast learning to pay adequately for adequate service by experts.

For a young man on the threshold of his career, however, there are certain very practical points to be considered. At least three questions may be asked by any vocation, whether it be public health work, private medical practice or any other. First, what are the immediate chances of employment? Second, what is the compensation? Third, is the work sufficiently permanent in character to warrant giving one's life to it? These three questions are fundamental. How does the field of public health work measure up to them, especially when compared with that of private practice of medicine?

It may be stated with full assurance at the outset that there are already more positions open for trained health officers than can be satisfactorily filled. The demand is increasing all the time. It comes from federal, state and city health departments; from the International Health Commission and similar quasi-public health agencies; from the schools, and more recently from rural counties. Medical inspection of schools has made rapid strides in the last year or two, both city and county. Twenty-one states now have medical inspection laws, ten of which are mandatory; while in many of those states without special laws on the subject many individual cities have inaugurated medical inspection systems. The medical inspection work is more and more being centered about the whole-time health officer. Maryland is looking for men to fill positions created by the sanitary district bill passed at the last legislature. New York State is in the market for a large number of trained health officers. North Carolina employs eleven whole-time county health officers at salaries that attract capable men irrespective of residence. Sooner or later all the states will exert that control over hygienic and sanitary conditions which a few now exert, and this will mean an ever-increasing demand for public health officers to give their entire time to the community. Already some of our educational institutions are coming forward with special courses to train men for the new work—the "School for Health Officers" of Harvard and Massachusetts Institute of Technology is sufficiently well known; and at least five American universities—Harvard, Pennsylvania, Michigan, Wisconsin and Tulane—now grant the degree of Doctor of Public Health for special public health work over and above the requirements for the regular medical degree.

With the increased demand for trained health officers has come higher compensation for such work. Specially trained men are commanding salaries much more nearly adequate than in the past. In the days of political appointments the candidate for health officer was glad to get a small regular salary for a little of his time to supplement his always uncertain and frequently uncollectable private fees. With whole-time men engaged, better salaries come as a natural development. Already the salaries paid health officers compare more than favorably with the present incomes of private practice. Investigation has shown that, despite the large earnings of a few medical men, the average

* Address delivered at the Commencement Exercises of the Medical College of Virginia, Richmond, June 2, 1914.

salary for a physician in the United States is between \$800 and \$1,200.¹ In New York City the salaries of health officers range from \$900 to \$1,500, but this amount is felt to be so little that the physicians are allowed to take some outside practice. Salaries of school medical inspectors in twelve cities enumerated by Dr. Heitmuller, of Washington, D. C., ranged from \$1,200 to \$2,000.² These figures do not include the administrative pay in public health work, which is of course much higher. Surgeon-General Blue, of the United States Public Health Service, notes that the municipalities are offering such good inducements that many of the men in his branch of the government are leaving the service to take positions as health officers, and he foresees a steady rise in compensation.

That salaries will continue to grow better in public health work is evident from an analogous development in another field in which what was once a private, individual matter has become a public function—that of education. When school superintendents were elective the pay was low and tenure insecure, and few thoroughly capable men were attracted to the profession. To-day the city school superintendent is one of the highest paid of municipal officers, and enjoys an independence of political affiliations that is the envy of other public officials. It happens that in the case of state and county school superintendents the process has not been completed; in some states partisanship has been entirely eliminated from the schools, and school officers are on a thoroughly professional basis; in others this is not yet the case. It is possible to look over the states and tell at a glance where the pay is high or low, according to whether the position is or is not political. New Jersey's commissioner of education is an educational expert who receives \$10,000 a year. His politics have never been inquired into; he was brought from a distant state because he was considered the best man for the position. Nebraska's state superintendent of public instruction, nominally with the same qualifications as New Jersey's commissioner, is elected on a party ticket. He is paid \$2,000 a year. The county superintendents in the six to nine hundred dollar class are for the most part in states that have not yet fully accepted the scientific attitude toward expert public service; the \$3,000 county superintendents are in states that have learned, as all will soon learn, the basic economy involved in high pay for expert service.

What has taken place in the field of education is taking place just as definitely in the field of public health work. More enlightened public sentiment with regard to medical standards is removing the health officer from politics and increasing his pay to a point at which well-trained men are sought and obtained for the work.

To ask if public health work will be permanent is to ask whether good health will always be desired and whether community spirit will grow. The public health officer need not fear for employment; he is a necessary factor in progress. His field, dependent as it is on community good health, rather than individual ill health, will grow ever more important as prevention replaces treatment in the handling of disease. The young man inclined to choose between private practice and public health work would do well to bear in mind the essentially permanent character of community

health service, unaffected by the many temporary conditions that make or unmake opportunities in the field of private practice.

One thing is certain. The field of public health work is no place for the poorly trained medical man. Medical men are needed for health work, but only highly trained medical men. The public is going to employ more and more health officers; it will be liberal in its compensation, but it will insist on men specially equipped for the work. At present it is difficult to get the precise training that is needed. The universities and medical schools are just beginning to awake to the supreme importance of positive health work in the community as compared with mere negative combating of disease. The health officer should have something that will do for his future work what the hospital does for the ordinary medical man. In default of other agencies to provide this special preparation, new agencies will have to be devised; and pending this, promising young men who have completed the regular medical course in the institutions of higher grade should be selected to serve an apprenticeship under trained health officers in actual service, both in the field and in the administrative offices.

Once get the idea of the trained health officer at his work, mapping a community, surveying it with a view to sound principles of sanitation and inspiring the citizens with the ideals of healthful living, and it does not require a much greater flight of the imagination to see this work of survey, prevention and health-teaching done everywhere—in all local communities, under county supervision; in all counties, under efficient state supervision, and all states under efficient national supervision. One might go a step further and picture a broadly organized international health organization, making a survey of the leading nations, taking the best to be found in the experience of the different nations and setting up standards for all the nations to attain. All this may seem too far afield; or at least too remote for men now living; but it does not seem so impossible of realization when we consider the other scientific achievements of our day, in medicine itself, if you please; and a vision like this will in any case serve to reassure those who may enlist in this war that it is not a war of a day, or even of a generation, but a permanent indispensable service to society.

There appears to be some danger that the public health work may to some extent escape the control of those most competent to direct it—the medical profession. This is emphatically a movement in which leadership belongs to the trained medical man. The lay sanitarian, no matter how efficient he may be in his own particular line, cannot wholly take the place of the physician, with his peculiarly valuable background of education and human experience. As routine medical treatment yields before preventive medicine, readjustment will have to take place; but I believe that readjustment is nearer than many of us realize; and I have sufficient faith in the men of my profession to believe that in large measure this readjustment will come from within. Something like it is already taking place in England, where the community ideal has recently gone forward by leaps and bounds. The spirit certainly exists among medical men in the United States. Does not the constitution of the American Medical Association recite that its aim shall be the "enlightening and directing of public opinion in regard to the broad problems of hygiene"? And the corresponding section of the constitution of the North

1. Pennsylvania Med. Jour., 1901-1902, v, 362.
2. From unpublished memoranda.

Carolina State Medical Society goes even further in acknowledgment of the public health aim of the medical profession—it not only urges the extension of medical knowledge, better standards of medical education and “the enlightenment and direction of public opinion in regard to the great problems of state medicine,” but urges as the motive for this “that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease and in adding comfort to life.”

Surely no richer field of labor can be conceived of than that of public health work. The medical man has always stood for something a little more than just his profession; as confidant, as valued counselor in time of trouble, as the keeper of family secrets, he has played the rôle of an idealist in human history. Add to these individual and personal attributes of the old-time physician the ideals of the health officer in his social service of to-day, of positive effort in behalf of all his fellowmen, and you will produce a band of men who will indeed be valued guardians of the outposts of civilization.

THE VALUE OF THE MEDICAL COLLEGE LIBRARY TO THE STUDENT *

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Only in recent years have medical colleges realized the value of a medical library as an essential part of the college equipment. Medical students two decades ago were without the help of a medical library; they had to be content with a case of books, largely obsolete, in a corner of some out of the way room. A student in those days was expected to do his reading in his preceptor's library. Often older graduates, on visiting our library, have said to me, “We didn't have anything like this when I was a student.”

A modern medical library, in charge of an experienced librarian, is one of the requirements of the Council on Medical Education of the American Medical Association. To receive recognition as an acceptable medical college, “The college should have a working medical library to include the more modern text and reference books with the ‘Index Medicus’ and thirty or more leading medical periodicals; the library room should be properly lighted and heated, and easily accessible to students during all or the greater part of the day; it should be equipped with suitable tables and chairs, and have a librarian in charge.”

The maintenance of a well-equipped medical library as a part of the medical school or college has a number of advantages. In the first place it is a convenience to the students in that it makes it unnecessary for them to carry about a number of their own text-books to which they might wish to refer. The library, however, is not intended to take the place of the students providing themselves with such books as they should have for their own use in their homes. Some students are not in a position to supply themselves with all the necessary text-books required, and for these the library provides an aid much desired and appreciated. Were it not for the library facilities, these students

would be compelled to follow such notes as they could take in the lecture room and clinic. The instruction so acquired would satisfy those students who were simply bent on gaining sufficient knowledge to pass their examinations. They would not, however, have the broader knowledge and culture obtained by the students who supplemented their lectures and clinics by reading the fuller accounts in the various standard text-books and systems, as it is not possible for any teacher to cover in detail in the time allotted the many subjects of his particular branch of medicine as fully as it is given in an authoritative text-book. It is necessary for the student, while in college, to confine himself to certain text-books and instruction of his teachers, but by reading he can become familiar with the opinions and methods of other authorities which it would be well for him to know, not so much for use during his medical course, but as a broader knowledge for use in his future professional career.

Another advantage of the medical college library and a comfortably equipped and attractive reading room, easily accessible, well-lighted and heated, is that it encourages the student to use the library during his odd moments instead of wasting his time on the streets or elsewhere.

Possibly the greatest advantage of such a library is that it places about the student an environment which has a tendency to inspire in him a desire to read and become acquainted with the literature of his profession so freely available. It gives the student the opportunity to keep in touch with the literature in the more important current medical periodicals, and to become acquainted with the recent books and monographs on special subjects. If there is only time to look hastily through them and to become sufficiently familiar with them to know that such a work has been written on that particular subject, it will be valuable knowledge that will prove helpful at some future time.

To cultivate in the student the habit of reading in the odd moments and spare time of his medical course is to be encouraged and fostered in every way, for the possession of such a habit after entering on practice will be of inestimable value to him. It is safe to say that many who do not acquire this habit during their college career never attain it after graduation.

The great difficulty in endeavoring to encourage the acquiring of this habit by the student is the very limited spare time allowed in our already crowded curriculums.

The teacher who is himself thoroughly familiar with the literature of his profession can accomplish a great deal in the way of creating in the student an interest in seeking further information and knowledge by referring in his lectures and clinics to the masterpieces of medical literature, or to the biographies of those to whom the medical profession is indebted for their pioneer work or achievements in medicine and surgery. He can refer his students to the originals of articles which present results of experiments or investigations that have proved epoch-making. This avoids the necessity of the student investigator using his limited time to wade through a lot of valueless and ephemeral literature in order to find these masterpieces of scientific research.

Dr. Thomas McCrae of our faculty has followed the plan of assigning to certain students the preparation of a brief biography of those on whose experiments and investigations have resulted the foundation

* Extract from a paper read at the seventeenth annual meeting of the Medical Library Association, Atlantic City, June 22, 1914.