which shall be of the largest service to the world, have come to realize that, in these medical channels, large gifts are more likely to yield a certain, speedy and bountiful return in good to the world than in almost any other. And so, in conclusion, let me assure you that the outlook is most hopeful. The modern university school is already in existence in three or four cities, and while it has not yet come to its full glory and usefulness, we may rest assured that the signs are most encouraging, and that in the near future we shall have in operation in America medical schools in advance of any which the world has yet seen.

SHOULD THE GENERAL PRACTITIONER HAVE A WORKING KNOWLEDGE OF THE OPHTHALMOSCOPE AND TRIAL LENSES?*

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Baas says in Handerson's History of Medicine¹ that "Specialism is *per se* an evidence of a civilization of high development: indeed, of one tending toward its downfall," and speaking of the division of medical labor in our larger cities, Handerson² says that "the dangers of running specialism to seed are very manifest."

It might be possible to demonstrate historically that excessive specialism is the forerunner of medical decay, so that if in the present discussion I run counter to modern medical thought I may find justification for doing so in the ups and downs of medical progress throughout the ages.

There is no necessity of my calling the attention of the members of this Section to the great importance of the ophthalmoscope as an aid to diagnosis. And yet, I fear that while it is so valuable to us and we accept its findings with such confidence we often fail to impress upon the general profession its extreme importance.

One of the most impressive lessons I ever learned happened upon the receipt of Wood's little inexpensive English edition of Haab's Atlas of Ophthalmoscopy. When it was delivered at my office there were two or three general practitioners and several medical students present. I expressed myself as doubtful whether colored pictures of the fundus of any value could be published for so small a price. In order to test the accuracy of the representations it was suggested that I first examine the plates and make my diagnosis of the case represented. I was expected not only to diagnose a case of retinitis, neuritis, choroiditis, atrophy, etc., but to express an opinion as to the probable general conditions: such as syphilis, Bright's disease, brain tumor, ataxia, etc. After going through the entire list of 105 plates and checking up all my mistakes by comparing my diagnosis with the printed text with each illustration, in the words of one of the gentlemen present I only fell down on six: one of these I diagnosed as congenital, opaque nerve fibers, but as the patient was a rabbit and I failed to diagnose the rabbit it was counted against me. This test proved to my mind that the plates were ex-

tremely valuable, but to the gentlemen present it was an object lesson in the value of the ophthalmoscope which they never forgot; and I believe all of them have become enthusiastic users of the ophthalmoscope. One of them, the late Dr. Tuckerman, a man over forty years of age, used it intelligently daily in his private and hospital practice. There is something most remarkable when you come to think about it, that upon a hasty glance at a cheap reproduction of the appearance of the fundus of the eye you are able to say of this one, the patient has Bright's disease, of that one, congenital syphilis, another, pernicious anemia, another, brain tumor, and of another, probably his parents were cousins, and so on through the list. When I have presented the subject to the student in this light and then explained to him how inadequately any picture, no matter how well executed, fails to portray the eye-ground as seen by the skilled observer, I have no difficulty in kindling an enthusiasm in the mind of the student to see for himself.

But I had intended to take it for granted that we all believe that it would be a good thing if every practitioner could use the ophthalmoscope intelligently. The only question being, is it practical? Is it possible for the average medical student in the time allotted to him or that he may take profitably from his other studies to gain a working knowledge of this instrument? Twenty years ago I should have answered this question in the negative. My recollections as a student in the Moorfield Hospital in London were disheartening where many students came from America and would hang around the clinic for weeks and months and I am confident that many of them returned home without ever having seen a fundus oculi.

During my early experience as a teacher of ophthalmology I often became discouraged after failing completely to aid the student in seeing the fundus, even after many trials. But the medical student has changed. He is quite a different animal from what he was ten or twenty years ago. The student that now enters a medical school has at least learned how to study, and after two or three years of careful, thorough, conscientious laboratory work, when he comes up to the senior year he brings with him not only a trained mind but a trained eye and a trained hand. And I find that it is the exception now, when a student with this thorough laboratory training does not see the fundus the first times he takes the ophthalmoscope in his hand. He not only sees it but is able to make a creditable drawing of what he does see. Formerly, I sometimes doubted the wisdom of spending so much of the time of the student in the laboratory looking through microscopes, but I find that the training of eye and hand is just the preparation they need to become skilled diagnosticians, physicians and surgeons. And while I still doubt the value of some of the things they learn there I am fully reconciled to their spending their time in work of such exceeding great value in training their faculties for the more important work they are preparing to perform.

My experience has been that the student who buys an ophthalmoscope at the beginning of his junior year gains a practical knowledge of its use before he graduates, providing he has sufficient opportunity in dispensary and hospital clinics; and I believe at the present time most medical schools have sufficient clinical facilities for them to do so. And they do it without encroaching upon the time that should be devoted to other studies. It is surprising in our school, which I presume is no exception, how many of the clinical teachers

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, H. V. Würdemann and J. A. Lippincott.

1. Handerson's Translation of Baas' History of Medicine, p. 17.
2. *Ibid.*, p. 857.

are becoming familiar with the use of the ophthalmoscope.

The practitioner who uses the ophthalmoscope is not usually content with his knowledge of ophthalmoscopy until he has mastered the trial case and is able to fit spectacles also. I know that the mere mention of the general practitioner fitting spectacles suggests to the minds of every one present the middle-aged or aged practitioner who, having failed to make a success of general practice, took a six weeks' post-graduate course, bought a brand-new ophthalmoscope and test case and came home prepared to teach us all how to snip muscles. The traveling optician is preferable. These men were never equipped as general practitioners; they are hangers-on, and not worthy of consideration. I have in mind the medical student as we find him to-day—the man trained in mathematics, physics, chemistry and biology before he enters on the study of medicine. The student thoroughly trained in numerous laboratories for two years supplemented by two years of clinical instruction and in most cases an additional year of hospital practice either at home or abroad. The practitioner with this training can not be judged by the standards established ten or twenty years ago.

Following the lead of Johns Hopkins nearly all the medical colleges of the country adopted the plan some years since of confining all the clinical teaching to the last two years of the curriculum. It has been found that this method has not proved as satisfactory as anticipated, and many schools are now providing clinical instructions for sophomores and freshmen as well as for more advanced students. It is the opinion of many medical teachers that it is desirable to bring the student in contact with the patient almost from the first day he enters upon the study of medicine. This, it is claimed, was one of the redeeming features of the old perceptor method of teaching. The student first saw patients with his perceptor and subsequently in the medical school received his theoretical education. The study of medicine should be a perpendicular rather than a horizontal investigation. The student should first examine the patient, follow the clinical history of the case, examine the secretions and follow the patient to the postmortem table, and then study the pathologic specimens in the laboratory, thus obtaining a complete concept of diseased conditions rather than an innumerable number of disconnected facts and observations in the biologic, chemical, anatomic, histologic, bacteriologic, physiologic, pathologic and pharmacologic laboratories. The work as now prosecuted is extremely valuable from a scientific standpoint, but being so far disconnected from the main object in view, viz., that of making good practitioners of medicine, that the student leaves the modern medical school illy-prepared to follow his vocation. It is claimed that we have effectually killed off the medical perceptor but have not supplied his place. The perceptor who used the ophthalmoscope taught his student to use it. The stethoscope, laryngoscope, ophthalmoscope and other instruments of precision in diagnosis should be put in the hands of the student the first year of his medical studies.*

Some years since the oculists of Ohio were summoned before the State Board of Registration and Examination to formulate a rule to govern the prescribing of spectacles by the opticians. Some of the younger ophthalmologists were very much in favor of a strict interpretation of the law, enforcing which would prevent

all but graduates of medicine prescribing spectacles. I asked this question: If the opticians do not this work who will? We have over 3,000,000 people in the state, all of whom sooner or later will need spectacles. There are probably not more than 100 physicians in the state competent to prescribe spectacles intelligently. It is clearly impossible for them to fit the entire population with glasses. The general practitioners are unfitted by education, experience or inclination to do it, and until such time as they are willing to undertake this work I believe that it would be injudicious and unwise to interfere with opticians prescribing spectacles. The following rule¹ was adopted:

Resolved, That the act of prescribing and adjusting glasses in uncomplicated cases of visual defects shall not be held as practicing medicine, within the meaning of the law, but that the act of prescribing glasses or of adjusting the same, without the order of a physician in any case in which the vision can not be brought up to the normal, and which, in addition to visual defects, there exists any inflammatory condition, organic change, or disease of either the constituent or auxiliary structure of the eye, shall be held as practicing medicine, within the meaning of the law.

In my address as chairman of this Section in 1894 I expressed the opinion that every practitioner should possess an ophthalmoscope and a case of trial lenses and that he should be able to fit spectacles much better than jewelers, druggists and traveling spectacle vendors who style themselves opticians. I am of this opinion still. But until such time as the general practitioner prepares himself to do this work the spectacle vendors will continue to reap the harvest which properly belong to the medical profession. It has ever been thus—quacks abound because the profession does its work poorly. We howl about overcrowding the profession, and yet the people of this country spend millions for patent medicines and thousands for legitimate drugs on physicians' prescriptions. The hardest chair to find a man to fill in our medical colleges is that of practice of medicine, and will continue to be so until the younger members of the profession are prepared to be all-around general practitioners. It is a mistake for every young physician to hope to become a surgeon or a specialist. If I were a young man entering the profession to-day, I would make a specialty of general practice, and would prepare myself to do much of the work that the surgeon and specialist now do.

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TEACHING OPHTHALMOLOGY TO UNDER-GRADUATES.*

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Vast changes have been wrought in the practice of medicine in the past quarter century and its teaching has undergone radical metamorphosis. Time forbids, and necessity does not demand, a review of this evolution.

Teaching, even to-day, is of secondary importance to the average medical teacher, practice demanding the most of his time and study, and as a consequence the whole scheme of teaching in most medical schools lacks system, and the different branches, and even different

1. Ohio State Board Medical Registration and Examination in First Report, 1896, p. 25.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, H. V. Würdemann and J. A. Lippincott.

* See Bayard Holmes on the "Progress of Medical Education," THE JOURNAL A. M. A., Dec. 23, 1899.