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SECTION ON OPHTHALMOLOGY

PAPERS[†] AND DISCUSSIONS

THREE OPHTHALMIC QUESTIONS

OPTOMETRY, CONSERVATION, EDUCATION *

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BALTIMORE

Fellow Members of the Section on Ophthalmology:

My first and very delightful duty is to welcome you to this annual gathering—an event to which we have learned to look forward not only with pleasure but also with expectations of profit. Renewal of old friendships, contact with men whom we knew first for what they were doing and then claimed as personal friends, opportunities to blurt out our ignorance to hearers who are sympathetic because they have their own to swap for ours, shaking off for the time being the responsibilities and tire of office work and yet staying in the environment in which we are most at home—these are some of the things our annual meeting affords; and they are not lightly to be turned aside.

Some years ago I heard Dr. Osler say something like this—I am not sure even that he ever put it into print, but it ought to go there and ought to be remembered: "The doctor who lives to himself is a most dogmatic and dangerous animal. The patient watches his every expression; the nurse takes what he says as law and gospel; the family waits at the foot of the steps to get the latest news, and rejoices or trembles at the great man's verdict. After a while he gets to believe it all himself. Only when he touches elbows with his fellow doctors does he reach his true level, and because of this he owes it to himself and his patients not to forsake the 'assembling of yourselves together.'"

For my own part, I could afford to do without a great many things better than I could spare the help I get from an annual pilgrimage to this Section, and I know that I have plenty of companions feeling the same way. Of the social side of this meeting I can say only that I do not know anything about it. The Minnesota men served notice some months ago that they wanted hands off; but that provision is ample, and that the man who does not have a good time will have only himself to thank, are facts apparent already to those who know our hosts, and will be apparent to those who do not in a surprisingly short time.

I beg to thank you for considering me worthy of becoming your chairman, and for electing me to that position. I shall crave your indulgence for such errors as I may make, and for such success as attends our meeting I shall ask you to give the greater part of the credit to my friend who occupies the secretary's chair. Dr. Derby has been diligent in and out of season. In all the plans and work he has been ready with thoughtful suggestions and has always been willing to assume his own and others' duties.

He, Dr. Posey, chairman of the Executive Committee, and I decided to make an effort to secure some new working material for our meetings.

One cannot but be struck at society meetings with the number of men who are evidently doing good work, thinking about the problems presented in every-day practice, and yet taking no active part in contributing to the information fund. As the late Dr. Kipp of Newark once said to me, you get at what a man really thinks better on the hotel porch or at dinner than you do in a meeting. We have tried to get some of these men on our program this year, using those who have been the Section's mainstay in the opening of discussions. I think that we have achieved considerable success, and that the program shows not only new names, but also work well worthy careful attention.

In addition to those by members of the Section, we have three papers from invited guests. The trachoma question presents economic problems which have received careful study by the United States Public Health Service. We are indebted to the kindness and interest of Surgeon-General Rupert Blue for the detail of two of his officers, Drs. McMullen and Schereschewsky, to present this subject. With the addition of Dr. Stucky we have probably the three men who know most about the geographic, social and economic sides of this dreaded disease. The Massachusetts Commission for the Blind has sent Mr. Henry Copley Green, its field agent for the conservation of sight, to present to us the big problem of saving eyes; no one has had greater experience, no one can speak more authoritatively. Mr. Herbert E. Ives of Philadelphia has kindly come to discuss the subject of light. Finally, it has been our endeavor to emphasize the pathologic side of ophthalmology. A number of men working in pathology have brought instructive specimens, and will have time to

* Chairman's address.

† As the footnotes indicate, certain papers are here printed in abbreviated form.

demonstrate them. We have aimed to make the program short, but there is enough to require close attention to the end of the session.

OPTOMETRY

I ask your attention to a review of three matters of importance to the science of ophthalmology. The first is optometry. For years ophthalmologists have been forced to go before legislative committees and combat specious arguments in favor of elevating to a profession a large body of tradesmen. Our motive for opposing legislation desired everywhere, and now existing in thirty states, is conviction that it is the duty of a conscientious physician to oppose anything calculated to give the public false teaching on physical and medical truths. My purpose is not to repeat the arguments against such legislation, but to gather some lessons from this experience.

Optometrists have collected a not inconsiderable literature. All of us have read their articles. Refraction problems are discussed; quotations abound from standard medical works, and, on the surface at least, there is an appearance of scientific reasoning. All the way through, one can see a gradual approach to the "vital" element in refraction. I say "vital" not in the sense of essential—though it is really that—but vital in the sense of a living organism, with its circulation, nerve-supply, functions as an end brain organ; its power, on the one hand, to produce remote symptoms, and on the other to manifest evidence of distant lesion. Usually, as the optometrist writer approaches this point, reasoning wobbles. Soon we are in the familiar torrent of abuse of "drops," laudation of "fogging," attempts to draw conclusions from ocular phenomena clearly symptomatic, and so on. Evidence is conclusive that the writer is working with a mental bias.

For whom are these men writing? Are there in the optometric fold young, ambitious and conscientious men who are deceived into thinking that they are getting the real thing when they read optometric journals? Has the establishments of the optometry course at Columbia University attracted into optometry men with perfectly honest intentions, who believe they are entering a real science because a leading university is willing to take the apparent position of endorsing it? The question is not without importance.

There is, too, an entirely different class of literature, an example being a pamphlet called "Conservation of Vision and Modern Optometry" edited by the Publicity Committee of the American Optical Company. This pamphlet was widely circulated among physicians in Maryland before and during the session of the legislature of 1912. It contains, of course, the usual hysterical claims of glaucoma from "drops," without intimation of the existence of mydriatics which can be safeguarded. A striking feature of the pamphlet is a garbled quotation from the book of the late Dr. Roosa, published in 1889, about producing glaucoma. Omissions from the paragraph, as it appears in the book itself, add greatly to its value from the optometric point of view. Another striking thing is an attempt to make the late Drs. Norris and Oliver advise against the use of mydriatics. A statement which appears in the book of these writers in the chapter on "Examination of the Eye" is used by the Optical Company under the caption "Danger of Instilling Drops." In the book there is not a word about "danger." The student is warned against relying on a dilated pupil for routine ophthalmoscopic examination. He is at the same time told to dilate the pupil

unhesitatingly under certain conditions. All this is omitted in the Optical Company's pamphlet. One unfamiliar with the original source could form no other conclusion than that Drs. Norris and Oliver were opposed to the use of mydriatics.

Finally, just a mention of two items appearing in this May issue of the *Optical Journal and Review*. They are indicative of the mental state and intentions of optometrists. The leading article is entitled "Oculist Opposes Drops in Refraction." It is written by one Herbert Dickson, M.D., of Chicago. Dr. Dickson is evidently a newcomer into the Illinois metropolis, for his name does not appear in the American Medical Directory for 1910, but does in that of two years later. The article itself is a vapid effusion with a few well-known physiologic facts and practically nothing more, except a denial of permanent weakening of accommodation from "drops." This the editor criticizes in a foot-note, and naturally, for it is the optometric Gibraltar. An editorial calls attention to the "argument" against the use of "drops" by the "Chicago oculist," who, incidentally "expects to read a paper in July at the state optical convention in Chicago, explaining his method of treating cataract without operation, and showing how his treatment can be used in cases of glaucoma and optic atrophy." The doctor adds, "I am giving out this new matter at a meeting of optometrists rather than at a medical meeting because my practice has come to me through the help of optometrists and in spite of physicians, to whom therefore I feel no gratitude."

The other item has reference to the recent amendment of the New York optometry law prohibiting the title "Doctor" unless it has been conferred by a duly authorized college prior to the passing of the amendment. An editorial in the *Optical Journal* has this: "It is believed that a number of the optical colleges will be recognized so that graduates who receive degrees from them will be entitled to use the title." It is stated that the New York State Educational Department "gave assurances" to this effect. If I am right in my inferences, the optometrists' "scientific" articles have just enough scientific veneer to fool an uninformed person, student or legislator. Their writers abuse ophthalmologists, but emphasize and welcome every sort of seeming medical endorsement—even to the extent of manufacturing it by garbled quotations. They speak with editorial favor of scheming to circumvent an amendment to a state law forbidding them to use a title which has but one popular meaning, and which they have not earned.

These are the people we are called on to oppose in their endeavor to secure professional recognition. In this work we have done more than prevent legislation in a great many states. The necessary publicity of the matter has had an educational value. It is more generally appreciated now than formerly that glasses are therapeutic means for combating the results of congenital deformity, senile changes or functional results of disease, and that the diagnosis is part of medicine. This knowledge has spread to members of legislative bodies and it is rarely necessary to argue it.

If I correctly interpret the present situation, it is of social rather than strictly scientific nature. True, the latter is its underlying feature, but it is the former which affords the optometrist his greatest strength. I do not know that I can put it better than it was put to me by a member of the Maryland legislature, who has twice helped defeat optometric legislation. Substantially what he said was this:

The optometrist has only a small part of a big science; he is not trained to know even where his sphere of activity ends; his work is full of danger to the public, for without medical training he cannot be depended on to know the difference between health and disease; yet the fact remains that he often does give satisfactory spectacles, and there is a large class of persons whom he has served for years and will probably continue to serve until he makes some blunder. He asserts that he is trying to elevate his own standards.

Then I was asked, "Cannot the medical profession propose something positive?"

I bring this question to the Section on Ophthalmology, with another: Was it wise a year ago to abolish our committee on optometry? True, the *Bulletin* of September, 1911, brought the matter up to date and contains the basic information on which we must work; but legislatures continue to meet, and the situation is constantly changing. The plans of the Council on Health and Public Instruction of the American Medical Association, for broad study of all hygienic matters, put this and all health questions in a new light. I would not be understood as yielding to the present demands of the blatant commercial optometrists, totally unqualified for professional standing, even when judged out of their own mouths. Yet I feel that the Section on Ophthalmology has not done its last duty in this optometry business, and that we still have educational and probably legislative obligations to fulfil. I believe that the first step is the selection of a capable committee of five or more of our own members to take up the matter with the Council for public protection.

CONSERVATION OF VISION

With approval of the Executive Committee, an entire session is devoted to conservation of vision, the subject to be presented by Henry Copley Greene of Boston. Choice between the terms "conservation of vision" and "prevention of blindness" is not without significance. The former includes the latter, but it goes farther, and brings within our purview influences which affect eyes functionally, and which receive but scanty treatment in our own literature. It suggests means for bridging over the critical period of school life—means developed by the thought and skill of the illuminating engineer, the architect and other professional men. It brings us in contact with the social worker, the philanthropist and altruistic organizations.

About three years ago the Russell Sage Foundation held a series of meetings in New York, to which were invited representative men and women from different spheres of work. Much valuable information was gained. Prior to the national work of the Russell Sage Foundation, a committee of the American Medical Association had been collecting data on blindness, studying not alone immediate causes, but also underlying conditions. If one will glance over reports in our Proceedings he will find much of value on every medical phase of preventable blindness. There are, also, in engineering literature and in papers written by our own members, discussions of proper methods of lighting rooms, arranging school desks, home regimen, etc. Much suggestive writing also exists: What should be done for children with defective vision but still sight enough to enable them to obtain some education? What are the functions of the district nurse and the social visitor? How shall innocent children be protected from ignorant parents? These are but examples of activities opened by the concept of conservation.

The ultimate goal is to unite into one all these forces, medical, social, educational, philanthropic, moving toward physical, mental and, indeed, moral conservation.

It was with this dream, if I am not mistaken, that men and women attended the Russell Sage conferences, and it was with this ambition that they entered into the formation of a National Association. And yet, with all this information at hand, with a great foundation ready to stand behind a strong movement for conservation, with thoughtful, studious men and women anxious to throw themselves into the work, we have, so far as practical organization is concerned, hardly commenced. Some things have been done in a few states; in some they have been done better than in others, and in most not at all.

In my judgment, national movements have accomplished so much less than was hoped for because work was started before proper foundations were laid. Of what use is literature unless there are arrangements to receive and distribute it? Of what use, beyond exciting a spasmodic and temporary interest, are exhibits, unless professional and public minds have been prepared for them, and unless there exist forces to push home their lessons? What is needed is the organization, in the medical ranks of every state, of a society to keep at work till the general profession has learned its duties, the philanthropist his, the legislator his. We need leadership. It should be furnished by this Section, acting with the Council on Health and Public Instruction of the American Medical Association. Dr. Posey has carefully studied this sphere of conservation. He, and Drs. Wood and Lewis, have been asked to present a report, which they will do at our executive session.

EDUCATION

In the educational number of the *Bulletin* of the American Medical Association, issued Sept. 15, 1909, there is published under Section 8 the report of the subcommittee on diseases of the eye, ear, nose and throat. The ophthalmologists on this committee were Drs. deSchweinitz, Jackson, Standish and Wilder. Among the recommendations made was that ophthalmology, in the sense of pathologic conditions, should not be taught during the first or second year; "whether the third or fourth year of the course should be selected for the presentation of these subjects necessarily is best decided according to the arrangements of individual schools." Before beginning ophthalmology, however, the student should have certain preliminary training "in the anatomy, structural as well as regional, of the eye." He should also receive careful training in its physiology "and an arrangement should be made with the department of physiology in each medical school . . . by which the students in the year preceding that in which they receive their training in these several branches should have the opportunity of obtaining the necessary physiologic instruction." There should also be clinical demonstrations to smaller sections of the class, the student being required to make his own examinations and diagnoses. There are recommendations regarding the number of hours of instruction, didactic and clinical, subjects to be included in the course, qualifications of the instructors, etc. The last section of the report contains this: "Thus far the report has made no reference to the instruction in pathology and pathologic anatomy. . . . In the number of hours allotted, a sufficient time must be given to this particular subject to enable the student to obtain a satisfactory understanding of his clinical work, and each teacher will

naturally include instruction in pathology in his course."

The recommendation that training in anatomy and physiology should immediately precede the study of abnormal conditions is important because the medical student of to-day has so many things to think about that he is in a more or less chronic state of mental acrobaticism. If the superstructure is not put on before the foundation has had time to crumble, he can have only insecure knowledge; the farther his pathologic is removed from his anatomic and physiologic training, the less apt is he to understand the former or remember either. The same is true of the relation of a specialty to general pathologic principles; and here is a question for every conscientious teacher to ask himself—how well qualified is he to teach his own specialty on the basis of general pathology? Probably he received no such systematic training when he was a student twenty years or so ago; diseases were taught by symptoms, and treatment was based largely on the physiologic action of drugs. Do teachers sufficiently appreciate the change they must make in conception, and realize how readily the eye lends itself to illustration of general pathologic principles? It is no uncommon thing to find that our best students forget, after two or three years, the diagnostic signs of common eye diseases. The reason is not hard to find. They had not been given a proper thinking basis because the specialty had not been harnessed to pathology.

To determine the extent to which our medical schools have complied with these recommendations, I sent a questionnaire to the deans or the professors of ophthalmology of schools ranked in Class A plus, and A, as given in THE JOURNAL, Jan. 18, 1913. These questions included:

1. The year for preliminary instruction and position of the instructor.
2. Whether or not didactic instruction is given.
3. The time and extent of section teaching.
4. Elective courses.
5. Facilities for postgraduate work.

There are sixty medical schools classified as above, and up to the time I was compelled to prepare this paper, replies had been received from thirty-six. Probably a larger number would not materially affect conclusions.

All of the replies state that some instruction is given in anatomy and physiology, and in all but two of the schools prior to the teaching of ophthalmology. It is impossible to judge of the extent of this teaching. Evidently it ranges from mere presentation of gross anatomy to sectional laboratory instruction in both anatomy and physiology. Instructors are the professors of anatomy and physiology or their assistants in twenty-eight schools. In most schools this instruction is subsequently reviewed by the professor of ophthalmology. In four schools only the professor of anatomy is concerned, no mention being made of physiology. In two preliminary teaching is left to the physiologic department, and in two more it is given by the professor of ophthalmology in the first or second year. The time given to this preliminary instruction is:

First year only.....	4 schools
First and second years.....	16 schools
First, second and third years.....	1 school
Second only	10 schools
Second and third.....	2 schools
Third only	3 schools
Total	36 schools

The time relation between preliminary instruction and ophthalmology is:

According to recommendations of committee (i. e., in two successive years).....	17 schools
One year between preliminary instruction and ophthalmology	11 schools
Two years between preliminary instruction and ophthalmology	6 schools
Two departments begin together in third year....	1 school
Two departments begin together in second year...	1 school
Total	36 schools

It thus appears that but one less than half of the schools heard from have adopted the plan of successive years; evidently there is a general tendency to follow the committee's advice. All of the eleven schools with a single year intervening end preliminary instruction in the second, and give ophthalmology in the fourth year. This is doubtless due to the crowded nature of the third year. Three schools attain the "successive" idea by giving special anatomy and physiology in the last part of the third year—a good idea if the chief course is put in the fourth, and if the third year affords time.

My second question had reference to didactic teaching. Evidently there is no stampede to do away with the old method. There seems to be some tendency to depart from lectures and to substitute reading, quizzes on this reading really taking the form of "conferences," "round-the-table talks," etc. The fourth year is still selected by the large majority of schools for didactic instruction. In my judgment this work should be put into the third year, when feasible, because it will receive more thought if introduced before the exigencies of graduation present themselves. Six schools neglect the didactic course entirely, or give it in a modified form. The character and standing of these schools make this tendency important. The University of Colorado, for instance, makes laboratory instruction a prominent feature of its didactic work. The University of California limits its didactic instruction to "a few lectures in the third or fourth year." Leland Stanford Junior University confines it to "association with clinical cases in the senior year." The reply from Cornell University states that didactic lectures illustrated by lantern-slides are given to the fourth-year students; the number of lectures is not stated. Evidently it is small. In Columbia, didactic teaching, if it can be so called, is limited to one clinical lecture a week for one-half year. The Johns Hopkins University gives no didactic teaching, apart from explanations in its clinical work, until the fourth year; then didactic lectures are elective. Required instruction in this university consists of ophthalmoscopy for two or three weeks in the second year and clinical demonstration daily for six weeks in the fourth year. The Iowa State University, the last of those showing a tendency to give up didactic teaching, seems to occupy a position of its own. A personal letter from Professor Dean illustrates how he has hypnotized the authorities of the university and obtained about all that one should desire—maybe a little more. He says:

In the fourth year . . . about 50 per cent. of their time is devoted to ophthalmology. Throughout the fourth year the class as a whole receives two and one-half hours per week of instruction. This consists of clinical lectures illustrated by cases. Following the lectures the students see the cases, each case being then in charge of a separate demonstrator. The class is divided into three sections. Each section receives the following work for one-third of the year: three hours per

week of outclinic service; three hours per week of operative service; two hours per week of ward class work. During this time each student has at least six bed-patients under his personal observation.

In addition to this undergraduate work, Dr. Dean has at his disposal three salaried positions to which he can appoint graduates.

The wisdom of departing from didactic teaching is certainly questionable. It has to be decided according to the opportunities and environment at each school. Also the class of students is a factor. A good teacher, with students well grounded in anatomy, physiology and the principles of pathology, can no doubt save time and give more valuable instruction with the patient before him. On the other hand, there is a certain numerous class of students who will better understand what they see if they know previously what they are to look for, and on what symptoms and signs depend. Retaining or abandoning didactic teaching must be a local issue; but it is evident that there is a tendency to discredit it.

Section teaching is reported from every school. The preference is for the fourth year—twenty-five schools. In one school it is confined in the third year; in eight others it is divided between the third and fourth; and in two the year is not given—probably the fourth. A rather striking reply is from Cornell University; section teaching is limited to eighteen hours in the last term of the fourth year, a period, it seems to me, entirely too late to begin such work. Some of the larger universities have a certain number of beds set apart for eye patients; these are used in section instruction. It would seem that at least a beginning has been made toward providing such instruction as will lay a proper foundation for postgraduate work. The time devoted to section teaching varies from ten to forty-six hours per section. Comparing some of the reports with the catalogues, it is obvious that a practical difficulty in section teaching is obtaining a sufficient number of capable instructors. In some of the schools large classes have to receive this instruction from the professor of ophthalmology with one or two assistants. It is impossible with such inadequate force to meet the requirements of twenty hours' section teaching for each student.

As to elective courses, replies from twelve schools state definitely that there are none. Ten others recite clinical opportunities at general and special hospitals of which the student may avail himself if he so desires, but this is a matter of volition. In fourteen schools there exists some sort of an elective system. In seven of these it is limited to ophthalmoscopy and refraction. In one the student is allowed to elect ophthalmology, and if he so desires "spend all his time in this work." In but four of the thirty-six schools from which I received replies does there seem to be attempt to give elective courses in all departments. These are Johns Hopkins University, University of Colorado, Harvard and the University of Pennsylvania. The University of Iowa should probably be added to this list on account of the large scope of its work. The remaining school which reports an elective course is the Rush Medical College. I have placed it alone, because, coming as it does from so thoughtful a teacher as Dr. Wilder, it merits consideration as a standard for elective work. The course includes advanced work in anatomy, pathology and bacteriology of the eye, with courses in refraction. It seems to me that this limitation is wise. If the standards of ophthalmologic teaching and practice are ever to be elevated, the four subjects to which Dr. Wilder

limits his elective courses must be the foundation. Unless men are tied up to these subjects, with, of course, needed clinical illustrations, they will not, save in rare instances, give them the necessary attention.

An interesting fact brought out by the replies is the small importance which teachers are attaching to operative courses for undergraduates. In but two schools are they compulsory, the Jefferson Medical College and the Medico-Chirurgical College. In the latter each student does six different operations on pigs' eyes. In two schools, Johns Hopkins University and the University of Michigan, operative work is elective. Reference is made in some of the replies to facilities for operating on animals' eyes if students so desire; but they are not encouraged to do so.

The Section has very recently heard about such postgraduate work as exists. The Universities of Pennsylvania and Minnesota are apparently earnestly engaged in organizing it on a scientific basis. Dr. Jackson's work in Denver is well known. The University of Iowa seems to have made real headway; Tulane University reports adequate opportunities for postgraduate hospital work, and Harvard has an organized course. Dr. Wilder, at Rush, offers what is essentially a continuation of the elective course to undergraduates. He says "facilities for postgraduate work embrace courses in pathology, anatomy, refraction work in the dispensary and at the hospital clinics." Three of my correspondents were good enough to outline their ideas of postgraduate work. For instance, Dr. Todd thinks that two years at least should be given to it; the first, as an intern in a hospital with time devoted to laboratory study, the second as an instructor and assistant in operative work; this, he thinks, should be followed by a year abroad. Dr. Jackson is in accord with Dr. Wilder regarding the necessity of strictly scientific branches; so, evidently, are many others.

It is impossible to divorce undergraduate work from postgraduate work. We recognize that a student cannot be made a competent ophthalmologist at graduation by any system available. But behind this truth there has lurked a tendency to reduce special teaching to what has been termed "essentials"; in other words, to attempt nothing more than teaching diagnosis of common diseases and how to avoid dangerous blunders. It will be hard to do more: *method of teaching this* is the important question.

As to past methods, we note that: first, many schools force the student to view ophthalmology as an addendum to, rather than an integral part of medicine—something to be taken seriously only if he expects to enter this specialty; secondly, the attitude of the schools has been reflected in state boards. Of fifty-three states and insular possessions, the laws of but seventeen require examinations in ophthalmology. In a few others a question or two sometimes appears on a surgical or obstetric paper, but that is about all. Without impressing the fact that every division of ophthalmology can be properly studied only from the point of view which controls all medicine; with the majority of state boards cutting eye diseases out of their requirements, is it any wonder that the six weeks' course has appealed to students as the logical thing? A few men—some of them recognized leaders in thought and practice—have tried to meet the situation by establishing postgraduate courses which begin with preliminary instruction in anatomy and physiology. We know the result. Students who thought beyond the standard of their undergraduate schools have created in such post-

graduate courses, in hospitals or private offices, opportunities for what Edward Jackson has termed "self-teaching." The rest, or a majority, obtained a veneer and became incompetent specialists, and state laws did nothing to prevent them. Introduction into undergraduate work of really careful preliminary teaching in anatomy and physiology, self-training in pathology by the eye teacher, if necessary, and ophthalmic instruction from these points of view may be depended on to change the student's mental attitude and fit him for postgraduate university opportunities. Through the proper channel in the American Medical Association, state boards should be urged to enforce the lesson.

Even then we must not lose sight of another thing. Ophthalmology is a very broad specialty. There is the relation between remote or systemic disease and ocular function or lesion; nature and reason of ocular manifestation; ametropia; relation of disorders of motility to remote troubles; differential diagnosis as to which is cause and which effect; the neurologic side of ophthalmology; its surgery; its all-important laboratory side; in a word, as Dr. Reber has pointed out in a recent paper, an oculist's office is almost a clinical laboratory in which special and technical investigations are made touching all parts of medical science. As we are advancing in our own thinking, so are our confrères in theirs. I question if we shall ever secure the symmetrically developed ophthalmologist, held up as the ideal by Jackson: a man trained and proficient, equally and adequately, in all these departments. The human equation and environment will always cause a certain amount of one-sidedness. Laboratory technic is very desirable, but it is not so important for the eye man as ability to deduct proper conclusions from laboratory findings, or to know when he needs laboratory help. He may be able to acquire this best from a laboratory confrère.

The first step in proper teaching of ophthalmology has been taken—insistence on preparation in undergraduate life for medical ophthalmic thinking. The second is to devise what Dr. Osler spoke of recently in Baltimore as "method—which is all we can teach students." We must remember that it takes time, and a good deal of it, to become fairly proficient in our own technical work; that we are preparing men for their life-work and they want, and ought, to get at it before their formative period has ended; that, after all, self-tendency will inevitably lead to self-teaching, and over-training has its dangers. Nothing is farther from my mind than a reactionary policy; but the essence of postgraduate work is neither multiplicity of subjects nor amount of time. It is drill in thinking: training in method. Simplification and formulation of that method is our present problem; and it is a most complex one.

With general professional awakening to the necessity of improved methods in ophthalmic education, and the response of schools to suggestions concerning undergraduate work, there should be no doubt of university response when asked to furnish adequate postgraduate facilities; but furnishing these facilities is only a beginning. Other avenues to ophthalmic practice will continue to exist. Even now there are here and there well-organized postgraduate courses, so far as they go. Capable and conscientious men, with no pretense to offering organized courses, take private students into their offices and hospital services, and see that training is founded on proper principles. Such teaching will continue. Unfortunately, so will the six weeks' courses and other attractive short cuts. In deciding

where to take his postgraduate training many an honest fellow, with genuine desire to get the best and do his best, will be forced to consider the element of time. Periods of two or three years, after graduation, have been suggested as the earliest time at which a student be admitted to university postgraduate work. Add one or two years for this work, and a man may find himself confronted with the dilemma of giving up what he knows he ought to take, or entering on responsibilities which he knows equally well he cannot assume. Postgraduate work will develop itself, and experience will be needed to work out all mooted points. One item in method on which I think insistence should be made is that we avoid such detailed instruction as will, by its very length, hinder general acceptance. This is but one of the economic problems involved. Another is some regulation of state license for special practice. It is a matter of professional gratulation that at its meeting in Washington last month the American Ophthalmological Society appointed a committee to study this postgraduate problem with special reference to a degree of Doctor of Ophthalmology. Those on the committee are Drs. deSchweinitz, Risley, Weeks, Standish and Jackson. That a proper solution will be reached by such men may be accepted. In my judgment, this Section should have its own Committee on Ophthalmic Education, and I recommend its appointment, to report at our next annual meeting.

You may be interested in a criticism of our Section from Dr. Welch. He said to me, "The Section on Ophthalmology has been distinguished by two traits: it has kept out of politics and minded its own business." This business, he continued, has been to enlist the services of the best men in the specialty, to seek instructive papers, and to elevate standards. Can we formulate the purposes of our existence better than has this distinguished pathologist?

842 Park Avenue.

PHYSIOLOGIC OPTICS THE BASIS FOR TEACHING CLINICAL OPHTHALMOLOGY

WALTER B. LANCASTER, M.D.

BOSTON

There are two features of our present methods of teaching ophthalmology to which I invite your attention. The first is that while the most important part of our subject is physiologic optics, we have made no adequate provision for teaching it. I have said elsewhere that physiologic optics is the most important department of ophthalmology because it is, on the one hand, to this that most of our time is devoted in our daily office practice, and because it is the one distinguishing feature which characterizes ophthalmology and which we do not share with other sections as we share anatomy, general physiology, pathology, *materia medica*, etc. But this understates the case. The fact is that physiologic optics so permeates the whole fabric of ophthalmology that it is as impossible for one to master any chapter of the subject without a good understanding of physiologic optics, as to weave a yard of cloth without the wool!

Let us consider a few chapters of ophthalmology with this in view. Take lacrimal troubles: Physiologic optics does not enter into the question of how to treat a lacrimal abscess or obstruction of the nasal duct, but that is not the whole chapter. How about the cases of lachrimation in which there is no obstruction to the flow of