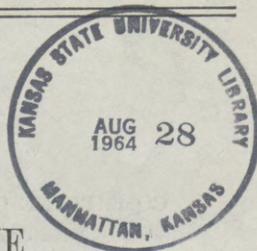


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LOANS TO STUDENTS OF OPTOMETRY

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HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-EIGHTH CONGRESS

SECOND SESSION

ON

H.R. 8546

A BILL TO AMEND TITLE VII OF THE PUBLIC HEALTH SERVICE ACT SO AS TO EXTEND TO QUALIFIED SCHOOLS OF OPTOMETRY AND STUDENTS OF OPTOMETRY THOSE PROVISIONS THEREOF RELATING TO STUDENT LOAN PROGRAMS (AND 30 IDENTICAL BILLS)

MAY 26 AND JUNE 22, 1964

Printed for the use of the
Committee on Interstate and Foreign Commerce



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¹ Resigned from committee June 2, 1964.

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LOANS TO STUDENTS OF OPTOMETRY

TUESDAY, MAY 26, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC HEALTH AND SAFETY
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:17 a.m., in room 1334, Longworth House Office Building, Hon. Paul G. Rogers, of Florida, presiding.

Mr. ROGERS of Florida. The subcommittee will come to order, please. The hearings today are being held on H.R. 8546 by Mr. Roberts of Alabama, and 30 identical bills which would amend title 7 of the Public Health Service Act to extend the student loan program, recently established for medical students under Public Law 88-129, to students of optometry.

The bills and sponsors are as follows:

- H.R. 8522, by Mr. Patman of Texas.
- H.R. 8560, by Mr. Hagen of California.
- H.R. 8562, by Mr. Rogers of Texas.
- H.R. 8586, by Mr. Baker of Tennessee.
- H.R. 8588, by Mr. Cameron of California.
- H.R. 8603, by Mr. Harrison of Wyoming.
- H.R. 8607, by Mr. Patten of New Jersey.
- H.R. 8658, by Mr. Thomson of Wisconsin.
- H.R. 8665, by Mr. Cleveland of New Hampshire.
- H.R. 8678, by Mr. Thompson of New Jersey.
- H.R. 8679, by Mr. Trimble of Arkansas.
- H.R. 8702, by Mr. Garmatz of Maryland.
- H.R. 8704, by Mr. Leggett of California.
- H.R. 8705, by Mr. McIntire of Maine.
- H.R. 8721, by Mr. Glenn of New Jersey.
- H.R. 8753, by Mr. Joelson of New Jersey.
- H.R. 8758, by Mr. Anderson of Illinois.
- H.R. 8775, by Mrs. Hansen of Washington.
- H.R. 8783, by Mr. Van Pelt of Wisconsin.
- H.R. 8788, by Mr. Halpern of New York.
- H.R. 8791, by Mr. Fisher of Texas.
- H.R. 8794, by Mr. Shipley of Illinois.
- H.R. 8795, by Mrs. Dwyer of New Jersey.
- H.R. 8917, by Mr. Laird of Wisconsin.
- H.R. 9038, by Mr. Dorn of South Carolina.
- H.R. 9108, by Mr. Macdonald of Massachusetts.
- H.R. 9182, by Mr. Grabowski of Connecticut.

H.R. 9313, by Mr. Robison of New York.
 H.R. 11095, by Mr. Bass of Tennessee.
 H.R. 11306, by Mr. Clark of Pennsylvania.
 (H.R. 8546 and departmental reports follow:)

[H.R. 8546, 88th Cong., 1st sess.]

A BILL To amend title VII of the Public Health Service Act so as to extend to qualified schools of optometry and students of optometry those provisions thereof relating to student loan programs

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) section 740(a) of the Public Health Service Act is amended by striking out "or dentistry" and inserting "dentistry or optometry".

(b) Section 740(b)(4) of such Act is amended by striking out "or doctor of osteopathy" and inserting "doctor of osteopathy, or doctor of optometry or an equivalent degree".

(c) Section 741(b) of such Act is amended by striking out "doctor of osteopathy" and inserting "doctor of osteopathy, or doctor of optometry or an equivalent degree".

(d) Section 741(c) of such Act is amended by striking out "or dentistry" and inserting "dentistry, or optometry".

EXECUTIVE OFFICE OF THE PRESIDENT,
 BUREAU OF THE BUDGET,
 Washington, D.C., May 26, 1964.

HON. OREN HARRIS,
 Chairman, Committee on Interstate and Foreign Commerce,
 House of Representatives,
 Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request of September 25, 1963, for the views of the Bureau of the Budget on H.R. 8522, a bill to amend title VII of the Public Health Service Act in order to make students of optometry eligible for student loans thereunder.

In his report to you on this bill, the Secretary of Health, Education, and Welfare opposes the enactment of H.R. 8522. The Bureau of the Budget concurs in the views expressed by the Secretary of Health, Education, and Welfare and, accordingly, recommends against the enactment of H.R. 8522.

Sincerely yours,

PHILLIP S. HUGHES,
 Assistant Director for Legislative Reference.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
 May 25, 1964.

HON. OREN HARRIS,
 Chairman, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is in response to your request of September 25, 1963, for a report on H.R. 8522, a bill to amend title VII of the Public Health Service Act in order to make students of optometry eligible for student loans thereunder.

The bill would extend to schools and students of optometry the loan provisions of the Health Professions Educational Assistance Act of 1963, part C of title VII of the Public Health Service Act. The Secretary of Health, Education, and Welfare would be authorized to enter into agreements with public or other nonprofit schools of optometry for the establishment and operation of student loan funds. The schools could make loans up to \$2,000 per year to students in need of the amount thereof in order to pursue a full-time course of study leading to a degree of doctor of optometry or an equivalent degree. Loans would be repayable over a 10-year period, beginning 3 years after the student ceases to pursue a full-time course of study. The present law provides for the establishment and operation of such loan funds only at schools of medicine, osteopathy, and dentistry.

The costs of a medical or dental education exceed those of an optometric education by a substantial amount. The length of training for medicine and dentistry is much longer: 4 years of training after college, plus a year of internship for all physicians and an increasing number of dentists, and, for the majority of physicians an additional 2 to 4 years of residency. Optometry usually requires only 3 years of training after 2 years of college, and no internship or residency.

Furthermore, the medical and dental students not only spend a longer period of time in training, but also the annual tuition charges at schools of medicine and dentistry are considerably higher, on the average, than those at schools of optometry.

All 10 accredited schools of optometry are eligible to participate in the national defense student loan program, which provides for loans up to \$1,000 a year, or a total of \$5,000. In fiscal year 1963, 174 students in 7 of the schools of optometry received loans averaging \$628 per student. These students represented about 14 percent of all optometry students, whereas only about 8 percent of the total full-time students at institutions participating in the student loan program received loans.

Because of the relatively lower costs of education to optometry students, and because of the adequacy of the national defense student loan program to meet their requirements, we believe that the new loan program for medical and dental students should not now be extended to cover students of optometry. We therefore recommend against the enactment of H.R. 8522.

We are advised by the Bureau of the Budget that there is no objection to the presentation of this report from the standpoint of the administration's program.

Sincerely,

ANTHONY J. CELEBREZZE, *Secretary.*

Mr. ROGERS of Florida. At present, the ratio of optometrists to population is 1 to 11,000. Just to maintain the present ratio of 1 to every 11,000 in view of our rapidly expanding population would require graduation of over 1,000 students per year. Yet in recent years, the number of graduates of schools of optometry has declined to less than 500 per year.

Under the amendments made by these bills, the Secretary of Health, Education, and Welfare would be authorized to enter into agreements for the establishment and operation of student loan funds, permitting loans up to \$2,000 for any academic year or its equivalent to full-time students of optometry. These loans would be made at a rate of interest not exceeding either 3 percent per annum or the going Federal rate and would be repayable over a 10-year period.

Our first witness this morning will be the Honorable Wright Patman, the distinguished chairman of the House Banking and Currency Committee.

STATEMENT OF HON. WRIGHT PATMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. PATMAN. Thank you, Mr. Chairman. There are times when the opinion of the average well-informed citizen on a particular subject to be as reliable as that of the acknowledged specialists and experts. This may be particularly true with respect to what is attempted in H.R. 8522 and its companion bills, because the passage of time plus numerous hearings have encrusted the issue with both statistics and emotion, and I do not intend to add to your burden in either category.

However, there is no doubt in my mind that the man on the street is aware of two conditions—the increasing need for care of

eyesight, the increasing need for people trained to protect eyesight. Public service programs of the TV industry remind us almost daily that modern living takes a heavy toll of our eyesight. A telephone call for an appointment with an optometrist in northeast Texas will elicit the fact that there is a fairly long waiting period, and this is no doubt the case elsewhere.

The bill I have introduced, H.R. 8522, authorizes a loan program for students of optometry. This type of educational assistance is, in my opinion, financially sound, professionally proper and desirable, and wholly in the national interest. I respectfully request your favorable consideration.

Mr. ROGERS of Florida. Thank you, Mr. Patman.

Our next witness is our colleague from Wisconsin, the Honorable Vernon Thomson. Welcome back to the committee.

**STATEMENT OF HON. VERNON W. THOMSON, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF WISCONSIN**

Mr. THOMSON. Mr. Chairman, it was my privilege in the 87th Congress to serve as a member of the Interstate and Foreign Commerce Committee of the House. Naturally, I am pleased to appear before you gentlemen today to urge favorable action on H.R. 8546. This bill is identical with H.R. 8658 which I sponsored.

As times pass we realize more and more the importance of vision in our own lives and in the welfare of our Nation. Optometrists are making a worthwhile contribution to conserving and improving the vision of citizens of all ages. We need more of them, and if by making available Federal loans both to prospective optometry students and those who have embarked on an optometric education we can increase the number of practicing optometrists, in my opinion, it is a sound investment.

In 1960, the population of Wisconsin was 3,952,000 and the projected population for the State in 1970, by the Census Bureau, will be 4,606,000, a 16-percent increase from 1960 to 1970. Right now in Wisconsin, there are 464 optometrists or a ratio of 1 for every 8,517 per capita which means that by 1970, if we take the normal growth pattern, we are going to need 240 more optometrists. However, in taking this into consideration we have to also realize the loss from death and retirement of those now in the practice of optometry. Therefore, the conclusion is that we are going to need more than the 240 to compensate for the growth rate and the loss of those now in practice.

The ratio of optometrists is figured on the basis of 1 to every 7,000 people, but if the trend is continued in Wisconsin, we will be below the minimum requirement with a ratio of 1 to every 10,000 per capita. Therefore, it is essential that consideration be given to encourage young people to go into the practice of optometry and I believe the benefits available under the student loan program should include the field of optometry. These are only loans which will be repaid with interest, but the real benefit to the country will be in providing more young men and women who are highly trained and dedicated to performing these greatly needed services for their fellow man.

Mr. ROGERS of Florida. Thank you for an excellent statement, Governor, and we certainly enjoyed having you with us once again.

Our next witness is the very able Congressman from Maryland, the Honorable Edward Garmatz. Please proceed, sir.

**STATEMENT OF HON. EDWARD A. GARMATZ, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF MARYLAND**

Mr. GARMATZ. Thank you, Mr. Chairman, and members of the committee. Through an oversight undoubtedly, H.R. 12, the Health Professions Educational Act, when originally drafted, did not include a provision for loans to students of optometry. This was not added when considered by the House and Senate, to prevent any delay in the passage of this important legislation.

Since the need for optometrists is as great as the need for medical, dental, and other professional health personnel, I introduced H.R. 8702, to extend the provisions of H.R. 12 to qualified schools of optometry and students of optometry.

In addition to our older citizens whose lifespan is being lengthened and who require additional care and service for their vision, the number of younger persons and children in need of optometric services also is increasing, and the demand for trained optometrists is not being met.

I am confident that assistance to help finance education in that field will do much to increase the enrollment of qualified candidates in that field. Therefore, I strongly urge approval of this legislation by your subcommittee and the full committee, to meet the needs for qualified personnel in that branch of health service.

Mr. ROGERS of Florida. Thank you, Mr. Garmatz.

Next we will hear Congressman William L. St. Onge, our good friend from Connecticut.

**STATEMENT OF HON. WILLIAM L. ST. ONGE, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF CONNECTICUT**

Mr. ST. ONGE. Mr. Chairman and members of the committee, I am delighted to know that your committee has scheduled hearings on the bill H.R. 8546 by the distinguished gentleman of Alabama, the Honorable Kenneth A. Roberts. This bill would amend the Public Health Service Act to make students of optometry eligible for Federal loans.

As you are well aware, the Health Professions Educational Assistance Act passed by Congress last year provided such loans to students of medicine, dentistry, and related professions, but unfortunately students of optometry were omitted. This is unfair and discriminatory against an honorable profession in the field of health, one that is as vital for the care of eyesight as dentistry is for the care of teeth.

Optometry is rendering a very important service in the complex age in which we live, and there is a steadily growing demand for such services. The Connecticut Optometric Society informs me that there is a serious shortage of optometrists in Connecticut and that all help should be given to young people to enter this profession.

One of these ways is to provide loan funds to students who are unable to finance their schooling in optometry.

It is estimated that some 100 million people in the United States require some form of vision care, such as correction by glasses, visual training, or other treatment. Our present ratio of available service to the population is 1 optometrist per 9,500 people, which is regarded as being way below the required needs.

The bill under consideration would authorize the use of Federal funds for student loans to schools of optometry on the same basis as such loans are being extended to students of medicine and dentistry. These loans are subsequently to be repaid after the student will have completed the studies and established himself in the profession. The estimated cost is reported to be less than \$1 million for the program.

Mr. Chairman, I strongly urge you and the members of your committee to take favorable action on this bill.

Mr. ROGERS of Florida. Thank you, Congressman, for your fine statement.

Now I would like to call on our friend from Illinois, the Honorable John B. Anderson.

STATEMENT OF HON. JOHN B. ANDERSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. ANDERSON. Mr. Chairman and members of the subcommittee, I am delighted to have the opportunity to make this statement for the record which you are preparing on the need for amending the Health Professions Assistance Act of 1963, to include optometry students in the group of students afforded the opportunity to receive loans to continue their studies under section 740.

My bill, H.R. 8758, would simply afford qualified optometry students the same opportunities accorded students of medicine, osteopathy, and dentistry under the provisions of the aforementioned act.

It is my belief that this is only fair and proper. Certainly, an optometry student faces the same financial problems, long years of study, and other difficulties encountered by every other student seeking a career in a major health profession. Thus it is grossly unfair to exclude them from the provisions of this act.

No one would, I think, claim that their profession is less vital than any other medical profession, thus I cannot conceive of any good reason for this omission. I, therefore, urge the subcommittee to take quick action on this bill so that just as soon as possible this oversight will be corrected and deserving optometry students given the opportunity to benefit under the provisions of Public Law 88-129.

Mr. ROGERS of Florida. Thank you, Congressman Anderson.

Our next witness will be the gentleman from Illinois, Congressman George E. Shipley.

STATEMENT OF HON. GEORGE E. SHIPLEY, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIPLEY. Mr. Chairman, I'm very pleased to have the opportunity this morning to say a few words in support of my bill, H.R. 8794, which, like your own, would provide for loans under the Health Professions Educational Assistance Act of 1963 to schools and students of optometry.

As you know, optometry is a vitally important profession in small towns and rural areas like the ones I represent since ophthalmologists rarely locate there. For example, there are presently only 4 ophthalmologists in my district of more than 443,000 people. An adequate supply of trained optometrists, then, is essential if these people are to receive proper vision care. Unfortunately, however, the 21,000 optometrists in this country cannot begin to meet the demands for their services. It has been recommended by the American Optometric Association that a minimum ratio of 1 optometrist per every 7,000 persons be maintained, but the country as a whole falls far short of meeting this goal.

I know I need not belabor the importance of vision care when speaking to this committee. You are all well aware that good eyesight is vital to a child's progress in school, to a driver's safety on the road, or to a workman's efficiency on the job. You also know that it was estimated by the American Optometric Association in 1960 that as much as 58 percent of the American population—more than 100 million people—require some form of vision care such as correction by glasses or visual training. Nearly half of this group, however, has not received any vision care at all or is relying upon obsolete or improper glasses. Even more frightening is the prediction of health experts that three-quarters of a million persons now living will eventually become blind unless preventive efforts can be made more effective. Of course, we need to continue our research programs, and we need to educate the public to seek eye care. These efforts will mean little, however, if we do not have enough trained experts who can provide the necessary care and apply the research findings in their medical practice.

Training in optometry has become longer and more expensive in recent years. Practicing optometrists have provided a number of scholarships, but they have been unable to fill all of the many requests for financial assistance. As a result many prospective students have chosen other fields where aid was more readily obtained. Federal loans to students of optometry would undoubtedly be a major factor in reversing this trend and encouraging interested students to prepare for a career which would not only benefit them but the entire country as well. Therefore, Mr. Chairman, I strongly support a loan program for students of optometry and urge favorable action upon my bill.

Mr. ROGERS of Florida. Thank you for a fine statement, Mr. Shipley.

Next we have that charming Congresswoman from Washington, the Honorable Julia Butler Hansen.

Welcome to the subcommittee.

STATEMENT OF HON. JULIA BUTLER HANSEN, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF WASHINGTON

Mrs. HANSEN. Mr. Chairman and members of the Subcommittee on Public Health and Safety, I appreciate very much the privilege of appearing before you today in behalf of my bill, H.R. 8775. This bill, very simply, extends to students of optometry the same benefits available to students of medicine, osteopathy, and dentistry. Under its terms, it would be possible for students of optometry to become eligible for student loans.

Before I comment specifically on this bill, I'd like to mention an article I noted in the May 23 issue of the Washington Post. President and Mrs. Johnson's daughter, Luci Baines Johnson, will work this summer for an optometrist here in Washington, D.C.

The article points out, "The middle of June, Luci will put in 8 hours a week in the office of Dr. Robert A. Kraskin, an optometrist at 4600 Massachusetts Avenue.

"Luci will be one of two assistants with visual training, Luci already knows firsthand about her new job because she took such training herself with Dr. Kraskin."

It is recognized that a group—if it is to become eligible for Government assistance—must be important to the public welfare.

Good sight is necessary for our people to live healthy, productive lives. Without good vision a person simply cannot function as he should. He is often sick. He cannot do his work capably. He is a drag on the economy.

Nowadays very few people past the age of 45 are able to perform efficiently without glasses or without the help of specialists in sight problems. Many of our young people are hampered in their school-work because of sight problems and must seek the services of eye specialists. Without correction, their sight problem may well prevent them from becoming productive citizens.

I might note here that though the optometrist serves the civilian population mainly, between 15 and 20 percent of optometry graduating classes enter the Armed Forces serving the sight needs of millions of those who serve in the Armed Forces.

Public health specialists have asserted that there should be 1 practicing optometrist for every 7,000 members of the population. In no State of the Union does this ratio of optometrist to total population exist. Indeed, available data show that the Nation is woefully short of qualified optometrists.

In order to meet the need for optometrists in the United States it is necessary first to increase the enrollment in the optometry schools. At present it is not possible to produce the number of optometrists necessary to satisfy the public needs in terms of death and retirement of optometrists as well as the population increase because of the lack of physical facilities.

Students have difficulty in finding money to begin the program and to complete it. Many optometry students are forced to prolong the length of their program by the necessity to work thus shortening the years of service to the public.

I respectfully urge this subcommittee to approve H.R. 8775 and make it possible for our optometry students to be entitled to student

loans in the same manner as students of medicine, osteopathy, and dentistry.

Thank you so much for your courtesy and thoughtfulness.

Mr. ROGERS of Florida. It has indeed been a pleasure to have you before us this morning.

I would now like to call upon the Congressman from New York, the Honorable Howard W. Robison.

**STATEMENT OF HON. HOWARD W. ROBISON, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF NEW YORK**

Mr. ROBISON. Mr. Chairman, I appreciate the opportunity to present this statement to your committee in support of the various proposals for Federal loans to students of optometry, including my own bill, H.R. 9313.

H.R. 12, the Health Professions Educational Assistance Act, provided student loans to persons studying medicine, dentistry, and osteopathy, but no such provision was included in that act for loans to optometry students. Therefore, I introduced my separate bill specifically designed to extend to students of optometry and schools of optometry, the provisions for student loan programs. I think all of us must understand and recognize that optometry, the profession licensed specifically to care for vision, is as important to us as dentistry, medicine, or osteopathy and that students of optometry should, in all fairness, be similarly eligible for Federal loans.

In recent years there has been a steady decline in enrollments in schools of optometry. The records show that our colleges graduate only about 500 students of optometry every year, which falls short of the national need. In order for the vision of our citizens to be adequately protected we should be able to provide a minimum of 1 optometrist for every 7,000 people, but, at present, there is approximately only 1 optometrist for every 10,300 people in this country. In 1952 there were 21,483 optometrists in the United States, but by 1962 there were only 21,101. In my own State of New York in 1952 there were 1,948 optometrists, and in 1962 there were 1,912—a decrease of 36. During this same 10-year period, the population of New York State increased from 15,237,000 to 17,402,000—an increase of 2,165,000 people—thereby again considerably reducing the number of optometrists for each resident. Consequently, the demand for optometric services has grown and is growing heavier each year.

The decline in enrollment in schools of optometry has been caused, primarily, by the outstanding salaries offered to graduates in engineering and technologies. Therefore, it is obvious that the incentive to enter the field of optometry—which can be provided by student loan programs—is sorely needed. Loans such as my bill would provide would offer such incentive, would help the student attain his educational goal in the face of rising tuition and fee costs, and would undoubtedly result in a substantial increase in graduates of optometry schools in a few years as has been the result in the educational categories covered in the National Defense Education Act.

Today, we are in an age of science and technology, where maximum visual efficiency is very much needed to develop the best defense weapons and space-exploration devices. We are in an age where

the world's two most powerful nations, the United States and Russia, are, in effect, competing for control of the skies. Without efficient vision our Nation will not be able to match the Soviets in the race for the moon, if it is made, or in any other space venture. In order for us to stay a first-class nation we are going to need increasing numbers of trained optometrists.

It has also been proven that aside from being a "key" to success in our military and space efforts, optometry is of vital importance for business and industrial employees, in reducing highway accidents, in child development, and in leisure time activities, to mention just a few areas.

Mr. Chairman, the cost of this bill is very small, but by its passage the security and health of our great country will be strengthened considerably as prospective students are encouraged to enter the field of optometry. It is my sincere hope that you will act favorably on this bill.

I thank you for allowing me to present this statement.

Mr. ROGERS of Florida. Thank you for appearing here this morning.

Next we have the Honorable Bernard F. Grabowski, the very able Congressman from Connecticut.

STATEMENT OF HON. BERNARD F. GRABOWSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CONNECTICUT

Mr. GRABOWSKI. Thank you, Mr. Chairman and members of the subcommittee. The gift of vision is priceless, but we must pay a price to keep it. Unless we train enough optometrists and ophthalmologists to meet the demands for eye care there will be much needless suffering from lost eyesight or poor vision. Approximately 75 percent of the people in this country who seek vision care go to optometrists, and yet the Federal Government does not have any adequate provision for loaning optometrists needed funds for their training. Ophthalmology students are eligible for loan assistance under the recently passed Health Professions Educational Assistance Act as are other student doctors, as well as dentists, and osteopaths. In theory, persons studying optometry are eligible for loans under the National Defense Education Act program but students in education, languages, and the pure sciences are given higher priority and so, in practice, optometry is not covered. Chester H. Pfeiffer, the dean of the College of Optometry at the University of Houston, said in a statement to the Senate Labor and Public Welfare Committee that his university alone had to refuse about 60 requests from optometry students for National Defense Education Act loans in 1 year.

Without additional financing for optometry students, we shall find that the already acute shortage of optometrists will grow more severe every year. Our 10 schools of optometry are graduating between 350 and 400 students a year but we need approximately 700 a year just to replace those who die or retire, let alone the 360 a year we need to keep up with our population growth. A member of the American Optometric Association testified that there should be 1 optometrist for every 7,000 persons in the population but in the country as a whole we have less than 1 for every 10,000, and in some

States there is only 1 for every 15,000. This is a great hardship on those who need care and may have to put up with long delays, or travel long distances, or still worse, may receive no care at all.

Only Federal assistance in the form of loans to optometry students can reverse this trend of growing shortages. Private financing cannot do the job alone. In recent years, optometrists have made heroic contributions to their schools, through cash gifts or increases in annual license renewal fees, but endowments and other sources of income are still not sufficient to support all the students who need financial assistance. At the University of Houston, at least 8 percent of the students accepted by the College of Optometry last year were unable to attend for financial reasons. Places are empty at optometry schools because interested students cannot afford the cost of such a specialized education. Dr. Lawrence Fitch, president of the Pennsylvania State College of Optometry, estimated that schools of optometry are now operating at 75 to 80 percent of capacity on the average.

By including optometrists in the Federal program of loans to students of medicine, dentistry, and osteopathy, the Government will be doing the country a very great service at very little cost. Optometrists have an outstanding record of repayment on the private loans they have received.

I urge that the committee take favorable action on H.R. 8546 as a sound, economical way to attack the problem of an ever-increasing shortage of optometrists and to insure Americans adequate eye care.

Mr. ROGERS of Florida. Thank you for an excellent statement, sir.

Our next witness is our colleague from South Carolina, the Honorable William J. B. Dorn.

STATEMENT OF HON. WILLIAM JENNINGS BRYAN DORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH CAROLINA

Mr. DORN. Mr. Chairman, I want to congratulate you and members of this committee for holding these hearings. It is always a great pleasure to appear before this distinguished committee.

Mr. Chairman, on November 6, 1963, I introduced a bill similar to H.R. 8546. I hope this bill is passed. It will mean that more students and prospective students of optometry will receive the financial help that will enable them to obtain further education in the field of vision care. Last year, we passed a bill whereby loans are made available to students of medicine, osteopathy, and dentistry; however, students of optometry were not included. I strongly feel that students of optometry should have the same privilege of borrowing and paying interest on student loans the same as the medical, dental, and osteopathic students.

Able men of the profession, more capable than I, will discuss with you the role of the optometrist in raising the visual efficiency of America. There has been dynamic progress in the field of optometry, but more, much more, needs to be done. We already have a shortage of optometrists and failure to act on this bill will result in a further reduction of the number of students who will study optometry in the future. I would like to point out, Mr. Chairman, that South Carolina's population in 1960 was approximately 2,370,000. At that

time we had 161 practicing optometrists and 22 physicians who might do some work in this field. Therefore, our ratio in South Carolina was 1 optometrist for every 14,700 people. The national ratio in 1960 was 1 optometrist for every 7,000 people.

Mr. Chairman, the optometrists in South Carolina are doing a tremendous job. South Carolina is rapidly becoming an industrial State. New industry is moving in at a fantastic rate. South Carolina is a leader in the field of industrial vision. The optometrist has a major role to play in industry, and in the future he will play that role in the best interests of individuals and business organizations. Industrial managers are aware of the effects of a good vision program on training time, labor turnover, sickness and absence costs, reduced spoilage, and accident expense.

Mr. Chairman, passage of this bill will be a big step toward insuring a continued flow of able, well-trained optometrists into vision care and into the necessary research connected with vision care.

Thank you for allowing me to appear before this great committee.

Mr. ROGERS of Florida. It has been our pleasure, Congressman.

Congressman Matsunaga is our next witness. Welcome to the subcommittee, Congressman.

STATEMENT OF HON. SPARK M. MATSUNAGA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF HAWAII

Mr. MATSUNAGA. Mr. Chairman and members of the committee, thank you for the opportunity to make this statement in support of H.R. 8546, the optometry education bill.

The Hawaii Optometric Association has called to my attention the fact that in Hawaii, as in the rest of the United States, there is a shortage of optometrists. There appears to be a definite need to encourage more students to study optometry. As our Nation's population continues to increase, the demand for our professionals in each field of health, including optometry, likewise increases.

I urge that the committee give H.R. 8546 a favorable report.

Mr. Chairman, I request that a letter from Dr. Richard A. Johnson, corresponding secretary for the Hawaii Optometric Association, explaining their interest in this measure, be made a part of the record.

Thank you.

Mr. ROGERS of Florida. Thank you for appearing here this morning, Congressman, and if there is no objection, the letter will appear at this place in the record.

(The letter referred to follows:)

HAWAII OPTOMETRIC ASSOCIATION,
AFFILIATED WITH THE AMERICAN OPTOMETRIC ASSOCIATION,
Honolulu, Hawaii, May 23, 1964.

HON. SPARK MATSUNAGA,
Honolulu, Hawaii.

SIR: Our association would like to urge you to support H.R. 8546 which concerns availability of Federal funds for educational loans to optometric students.

In Hawaii, as across our Nation, there is a definite shortage of optometrists. The number of optometric graduates each year does not make up for those presently needed to keep pace with our expanding population. We feel that if Federal education funds were available more prospective college students would be encouraged to enter our profession.

We would appreciate having this letter submitted to the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, in time for the hearing on H.R. 8546 on May 26, 1964. We hope the subcommittee will give this bill favorable consideration.

Respectfully yours,

DR. RICHARD A. JOHNSON,
Corresponding Secretary.

Mr. ROGERS of Florida. Next is our friend and colleague from South Carolina, the Honorable Robert T. Ashmore.

**STATEMENT OF HON. ROBERT T. ASHMORE, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF SOUTH CAROLINA**

Mr. ASHMORE. Thank you for allowing me this opportunity to present my statement, Mr. Chairman. It is my pleasure to support the proposed amendment to title VII of the Public Health Service Act introduced as H.R. 8546 by my friend the Honorable Kenneth Roberts, who is chairman of this subcommittee, to extend to students of optometry those provisions relating to the student loan program.

I have been privileged to be a member of the South Carolina congressional delegation for more than 10 years. My interest in this legislation is prompted by my knowledge of the highly qualified and devoted optometrists who are serving my constituents in the Fourth Congressional District and the people of my State.

Unfortunately there are too few optometrists in South Carolina. Our State population as reported by the Bureau of Census was 2,382,594 in 1960 and is expected to be 2,809,000 by 1970. In 1960 there were 310 optometrists serving my people. The South Carolina Optometric Association has estimated that by 1970, 68 optometrists will be needed over and beyond the optometric replacements that will be required as a result of attrition caused by death and retirement.

There is a scholarship provision in the South Carolina Appropriations Act for tax aid to optometry students not to exceed the difference between the tuition charge at the South Carolina State College and the tuition fee charged by such out-of-State institutions as schools and colleges of optometry. Although funds available are helpful, the amount is not sufficient to fulfill the need nor to stimulate the desired interest in the profession. It does indicate the recognition by my State of the importance of optometrists to its well-being and the shortage in South Carolina's optometric manpower.

We do not have a school of optometry in South Carolina. The individual practitioner must get his education at out-of-State institutions at great financial sacrifice. Just as is the case with other professions, an optometric education is quite expensive. The optometrist's education to care for man's most precious sense takes approximately the same length of time to acquire at the college levels as the other professions.

Optometry is the profession specifically licensed to care for vision as dentistry is the profession specifically licensed for dental care. It is one of only three health professions licensed in every State in the Union, and the District of Columbia, and the territories to examine and prescribe. As one of our necessary and important health sciences, it should have been included in the provisions of the Health Professions Educational Assistance Act. This oversight can be

corrected by passage of the legislation now before you. I offer this committee my fullest cooperation so that H.R. 8546 may be enacted this year and prospective students of optometry may be assured they will have education loans when they need them. I trust that you will take prompt and favorable action on this bill. Thank you for the opportunity to provide this statement in support of the visual welfare of South Carolina and our Nation.

Mr. ROGERS of Florida. Thank you, Mr. Ashmore.

Next we shall hear from our friend and colleague from Arkansas, the very able Congressman, James W. Trimble.

STATEMENT OF HON. JAMES W. TRIMBLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARKANSAS

Mr. TRIMBLE. Thank you, Mr. Chairman, for this opportunity to present my statement.

As a member of the Arkansas congressional delegation, it is a pleasure to appear before this committee in support of the proposed amendment to title VII of the Public Health Service Act so as to extend to qualified schools of optometry and students of optometry those provisions thereof relating to the student loan program. I have been privileged to occupy my present position as a Member of the Congress for nearly 20 years. My interest in this legislation is not prompted by the fact that there is a school or college of optometry in the State of Arkansas. However, we do have many well-qualified and dedicated optometrists who are serving my constituents and the people of my State.

One of these is Garland Melton, O.D., of Fayetteville. I have known Dr. Melton for more than 40 years and regard him most highly. He is not only a well-qualified member of his profession, but he is a loyal American who would not attempt to deceive me any more than I would appear here for the purpose of deceiving this committee. Many of my statements are based on conversations I have had with him. He assures me there is a real need for this legislation.

The Arkansas optometry law declares the practice of optometry to be a learned profession and the same rights, powers, and duties are declared to attach thereto as are attached to other learned professions. Not only do the same rights and duties attach to that profession, but I firmly believe that those who desire to become members of that profession should be entitled to the same rights and privileges as far as student loans are concerned as we in this 88th Congress provided for students of medicine, dentistry, and osteopathy.

Unfortunately, this was not done. H.R. 12 passed and is now Public Law 88-129. The bill went to the President without including optometry students in the loan provisions. A move is now on to correct that mistake. Thirty such bills in addition to the one introduced by Congressman Roberts of Alabama have been introduced in the House, including H.R. 8679 which I introduced. Senator Williams of New Jersey introduced S. 2180 for the same purpose. He was supported in so doing by the junior Senator from Arkansas and by a distinguished bipartisan group which included the minority

leader and 27 other Members of the Senate, about one-fourth of whom were members of the minority party.

Vision in this day and age is of vital importance to everyone, particularly the youth of our land as well as our older citizens. If it were not for the optometrists practicing in Arkansas, a substantial percentage of our citizens over 50 years of age would be unable to carry on their work. It is generally agreed that there should be 1 practicing optometrist for every 7,000 members of the population. Yet, in the State of Arkansas, the figures submitted to the White House Conference showed that we had only 1 licensed optometrist for 11,000 members of our population. Some States were less fortunate. Others were more fortunate, but in practically every State the number of practicing optometrists was less than the recommended ratio.

With the increase in population, the only way to meet this situation is to increase the number of students who are studying to qualify to practice this profession. When somewhat similar legislation was introduced in the 87th Congress, it provided for outright grants to the students in some of the health professions, but H.R. 12, as passed by this Congress, provides only for student loans which are to be repaid with interest. True, the rate of interest is less than the commercial rate.

If I were to attempt to tell you of all the areas in which vision is an important factor, my presentation would be unreasonably lengthy. There are other witnesses who will furnish you with some of this information. Therefore, I will conclude my statement by saying that I wholeheartedly, enthusiastically, and emphatically recommend prompt and favorable action on this legislation.

Mr. ROGERS of Florida. Thank you for a fine statement, Mr. Trimble.

The next witness is our colleague from New Jersey, the Honorable Frank Thompson, Jr.

**STATEMENT OF HON. FRANK THOMPSON, JR., A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF NEW JERSEY**

Mr. THOMPSON. Mr. Chairman, I want to thank you and the members of the subcommittee for this opportunity to express my support of H.R. 8546, which would amend title VII of the Health Professions Educational Assistance Act to authorize loans to students of optometry upon the same basis as those made available to students of other disciplines mentioned therein.

It is my understanding that there is a distinct need for more trained optometrists and that to meet that need our schools have to turn out considerably more students than are now being trained. For example, from 1960 to 1963 the population of New Jersey increased from 6,066,000 to 6,470,000, a growth of 404,000—nearly 135,000 per year. During this same period of time, the number of optometrists practicing in New Jersey decreased from 752 to 728, a loss of 24—8 per year. According to the New Jersey State Department of Conservation and Economic Development, New Jersey's population is expected to increase as follows:

1965-----	6,760,000
1970-----	7,440,000
1975-----	8,112,000

At the present rate of attrition, due to death and retirement, it is anticipated by the New Jersey State Board of Optometrists that the number of optometrists practicing in this State will decrease as follows:

1965.....	720
1970.....	660
1975.....	620

Based upon a ratio of 1 optometrist to 7,000 population, the foreseeable deficits in optometric personnel are as follows:

1965.....	243
1970.....	376
1975.....	539

These brief statistics are a clear indication that—

(1) Losses in optometric personnel are not being replaced, and the number of optometrists practicing in New Jersey is expected to decline steadily;

(2) The ratio of optometrists to population is being depressed by both the population increase and the deficit in new optometric practitioners; and

(3) Unless this trend is reversed very quickly, New Jersey residents may soon have to endure dangerously long waits to get their eyes examined with any regularity.

The cost of acquiring an optometric education and training has risen to the point where it is now financially beyond many qualified young people who might be interested in optometry as a career. The need of the people of New Jersey for an adequate supply of optometrists is no longer a matter of private concern. It verges upon a public issue. Nor is it any longer possible for private resources to provide the financial means to assist sufficient numbers of qualified but financially embarrassed young people in underwriting the cost of optometric education.

Good vision is so great a need in our ever-more-complex civilization that shortages of optometric personnel will be reflected in loss of jobs, lowered income, increases in school dropouts, and growing cultural deprivation.

It is an interesting fact that increased vigilance on the part of parents and school authorities is making it possible to detect sight deficiencies among our children far earlier than was the case in prior years, a situation which emphasizes even more strongly the need for a larger number of trained and competent optometrists.

The vision care needs of the people of New Jersey must be met. They can be met only by assuring a steady, adequate supply of new optometrists. A program of Federal loans to optometry students is the only way the requisite steady, adequate supply of new optometrists can be assured.

Because of these facts which I have presented, I introduced H.R. 8678, which is identical to H.R. 8546. I am pleased to note for the record that the New Jersey Optometric Association, through its administrative director, Andrew F. Fischer, O.D., has made known to me its support of this legislation. I urge strongly favorable consideration of this bill, and would ask that my statement be made a part of the record of these hearings.

I might add that the situation which exists in New Jersey is, no doubt, similar to the situation in other States, where there is also a great need for care and treatment of those with visual defects.

Mr. ROGERS of Florida. Thank you, Mr. Thompson. We appreciate your appearance.

The next witness is our colleague from California, the Honorable Robert L. Leggett.

**STATEMENT OF HON. ROBERT L. LEGGETT, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. LEGGETT. Mr. Chairman, it is my pleasure to coauthor the legislation before both the Senate and this committee, which legislation would simply authorize the use of Federal funds for loans to students and colleges of optometry on the same terms that they have already been made available to students of medicine, dentistry, and osteopathy.

The loans, as you recall, are interest bearing—repayable by the students on graduation—and it has been estimated that the cost of this legislation would be less than \$1 million which funds would be, as indicated, fully repayable.

As a Representative from California, I would like to call certain facts to your attention.

There are but 10 optometric educational institutions in the United States and 2 of these are in California. California has traditionally provided excellent educational facilities, be they public or private, professional or liberal arts. Our schools of optometry in California, as represented by the University of California at Berkeley and the Los Angeles College of Optometry, are the finest obtainable in the world.

The present facilities of the Los Angeles College of Optometry are composed of a complex of five reconstructed Army barracks. As were many other accommodations, they were constructed as temporary quarters in 1948 to educate a tidal wave of returning veterans. Because of the circumstances and the nature of the construction, the buildings did then, and do now, meet only the minimum construction standards.

In general, enrollments in optometry colleges rose 6 to 8 percent in the fall of 1963. An increase of 10 to 15 percent is anticipated for September 1964. In his speech to the Senate on September 25, 1963, Senator Williams of New Jersey fully described the need for qualified optometrists based on population service.

According to these statistics, then, colleges of optometry need to attract another enrollment growth of 30 percent as a minimum requirement and in order to provide adequate facilities these colleges will need the assistance provided under an extension of Public Law 88-129. Student enrollees will in most cases require financial assistance which could be provided under extension of this act.

As a practical matter, this is one of the valid and positive approaches to the poverty program, and I support assistance to those seeking to educate themselves in a skilled profession.

Mr. ROGERS of Florida. We appreciate your fine statement, Mr. Leggett.

The next witness is my good friend from our fair State of Florida, the Honorable Don Fuqua.

Since Congressman Fuqua is going to introduce Dr. Chapman, I am going to ask Dr. Peterson, would you mind—

Dr. PETERSON. I would be happy to.

Mr. ROGERS of Florida. It may be that Dr. Chapman and his associates would prefer to appear as a group. As I understand it, their testimony will be cumulative. This may be better if that is all right with you.

Dr. PETERSON. That is fine.

Mr. ROGERS of Florida. It is a real pleasure, then, to call on our good colleague, particularly our Florida colleague, Congressman Don Fuqua, one of our outstanding new Members of Congress who is fast becoming well known in the Congress and all over the country. Congressman Fuqua.

STATEMENT OF HON. DON FUQUA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. FUQUA. Thank you very much, Mr. Chairman and members of the distinguished subcommittee. It is a pleasure to be here in support of the pending bill, H.R. 8546, and the other companion bills that have been introduced. I have submitted a statement for the record in support of the bill and would like to say that as a member of our Florida Legislature, I had the privilege of working with Dr. Judd Chapman and other members of the Florida Association of Optometry in developing the bill and seeing its passage in our legislature where we recognized the need for a similar principle that we are advocating here today in this bill.

We established five scholarships at \$4,000 apiece to be given to these students and then them going out into areas where optometrists were not available. It is a very fine piece of legislation, and I think this committee in its wisdom in the past has recognized much of the need for the increased health care by evidence of the confidence that the Congress has in their ability by yesterday in the voice vote of unanimously approving the extension of the Hill-Burton Act and many other fine pieces of health education that this committee has rendered and submitted to the Congress. It is a pleasure to present a very personal friend of mine, and I am happy to say I am not a patient of his yet, but that I have the pleasure of his living in my district and also his serving with very great distinction this year as national president of the American Optometric Association.

We are very proud of Judd Chapman and the contribution in civic and church life that he has led in Tallahassee, Fla. It is a pleasure at this time to present him to the committee to make such statements as he wishes.

Mr. ROGERS of Florida. Thank you, Congressman Fuqua.

Your statement will appear at this point in the record.

(The statement of Mr. Fuqua follows:)

STATEMENT OF HON. DON FUQUA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Thank you very much, Mr. Chairman, for allowing me to appear before this committee in support of H.R. 8546 which amends the Public Health Service Act to make students of optometry eligible for student loans.

The importance of optometry to our day and time, and the future, is a matter which I am sure this committee need not be reminded. There are many and varied areas to which this field of medicine applies; such as military optometry, motorists' vision and highway safety, occupational vision, visual problems of aeronautics and space, vision aid to the partially blind, visual problems of children and youth are only a few.

The demand upon the men in the profession of optometry today is very great. In the United States we have about 1 optometrist for every 12,000 persons, whereas the recognized minimum is 1 for every 7,000 persons. Even with this deficiency, the Bureau of the Census considers that by 1970 there will be an attrition of 10 percent of the optometrists currently licensed.

There is clearly an apparent need for students of the profession and yet there are cases where acceptable optometry students have been unable to attend school because the necessary finances were not available. Many of these students needing financial assistance work their way through school causing them to have to lighten their scholastic load resulting in an extension of the time they must spend in a school of optometry.

Our Federal Government has provided for the medical student who needs financial help, and yet in a profession where we are lacking in those to serve our Nation, and where this deficiency is increasing, we have failed to recognize the great need in this area.

The optometric profession has made an attempt to provide the means for student loans, but their efforts fall short of the demands. Every one of the schools of optometry have funds available either for scholarships or loans, or both, but even these are not sufficient to meet the demands of the qualifying students.

I am very proud to state that the State of Florida provides five annual scholarships up to \$4,000 each for 4 years' attendance at an accredited college of optometry.

I feel it is time that our Federal Government recognizes the importance of the profession of optometry and recognizes further the need of financial assistance as it has given other medical professions. I trust you will give this matter every consideration and realize the serious nature of providing for help to young people who qualify for and are interested in the preservation of the sight of this Nation's people.

STATEMENT OF W. JUDD CHAPMAN, O.D., PRESIDENT, AMERICAN OPTOMETRIC ASSOCIATION

Mr. ROGERS of Florida. Dr. Chapman, if you will come forward, we are very pleased to have you and have our colleague present you, and all of us particularly in Florida are very proud of you and the fine accomplishments you have demonstrated here, particularly in being national president of the American Optometric Association.

Dr. CHAPMAN. Thank you very much, Congressman Rogers, and certainly to Congressman Fuqua, I pay once again my very sincere thanks to him for his interest in my profession as he has shown it very visibly to me during my term as national president. I thank him for taking time to come here today and introduce me.

My prepared statement, Congressman Rogers, will be presented to this subcommittee in detail, but in the matter of conserving time, I am going to summarize extemporaneously, if I may.

Mr. ROGERS of Florida. Yes. That will be fine, and may I say here the prepared statement will be made a part of the record and then we can have the testimony as you desire to present it.

(Dr. Chapman's statement in full follows:)

STATEMENT OF W. JUDD CHAPMAN, O.D.

Mr. Chairman and members of the committee, my name is W. Judd Chapman. I am president of the American Optometric Association and past president of the Florida Optometric Association. My testimony here today is on behalf of the American Optometric Association.

I am a practicing optometrist in Tallahassee, Fla. After attending the University of Florida I went to Northern Illinois College of Optometry, graduating in 1948. Subsequently I took postgraduate work in the contact lens field at the School of Optometry, University of Houston. I am a member of the American Academy of Optometry, the American Optometric Foundation, a former president of the Florida State Board of Optometry, and hold a Reserve commission in the U.S. Air Force Medical Service Corps.

It is a privilege and a pleasure to appear before this committee with my colleagues to present the facts which we believe warrant the passage of H.R. 8546. This is one of 31 identical bills introduced in the House of Representatives during the 88th Congress.

The man who joins his local or State association thereby automatically becomes a member of the American Optometric Association and must abide by our code of ethics. He is provided the "Manual of Professional Practice for the American Optometrist," a copy of which is being furnished to this committee for its files.

The optometrist never forgets that he has a public duty to his fellow citizens. There are numerous departments and committees within AOA dedicated to serving the public welfare. I shall name only a few:

Under the department of public health optometry there functions a committee known as the committee on vision care for the aging. The department of public information provides film strips, TV charts, radio tapes, scripts, speeches, posters, billboards, and publications which alert the public to the need for vision care.

One of our newly formed committees deals with visual problems in aeronautics and space. The May issue of *Aeronautics & Astronautics* carries an article by Dr. Ingeborg Schmidt entitled "Seeing a Satellite From a Satellite." Dr. Schmidt is a member of the faculty of the Division of Optometry, Indiana University.

Our committee on motorists' vision and highway safety has achieved nationwide recognition for work in this field. The committee on research held a symposium in Washington last year which was well attended and addressed by one of your colleagues, the Hon. George Miller, of California. Our committee on social and health care trends has been active particularly in providing vision care for the indigent. Among other important committees are the committee of occupational vision, committee on visual problems of children and youth, vision aid to the partially blind, and the committee on contact lenses, the chairman of which committee recently appeared before one of the Senate subcommittees which was investigating the subject of contact lenses and other vision aids furnished to the elderly.

The optometrists, considering their limited number, render extensive services to the Nation as a whole in addition to performing services for their individual patients.

It seems unbelievable that in passing the Health Professions Assistance Act of 1963, the student loan provisions were limited to schools of medicine, osteopathy, and dentistry. I know that you Congressmen will agree, since you have to read a daily basket full of mail and congressional bills, that with a few exceptions, education is acquired largely through reading and visual observations. The optometrist is the specialist in vision. However, our schools and colleges are competing for students not only with medicine, dentistry, and osteopathy but also with all phases of engineering as well as other fields of science and the arts.

The mere fact that the Federal Government has encouraged the establishment of student loans for three branches of the health care professions in and of itself places a handicap on our schools and colleges when it comes to competing for students. There are loans available to our students, but they are not adequate. There is not a single school or college of optometry which could not advantageously and with propriety utilize additional loan funds for capable students in college who would otherwise be forced to drop out.

We do not advocate making it too easy. On the other hand, we recognize that financial worries frequently result in a student failing to achieve the highest degree of excellence of which he or she is capable.

The importance of vision in this day and age is self-evident, both to our national defense and to our industrial strength. There are over 400 optometrists on active duty in the Armed Forces. They hold commissions ranging from second lieutenant to colonel or, in the Navy, from ensign to captain.

A person who suspects he has eye trouble, or just seeks reassurance that he doesn't, first goes to see the optometrist in his area or community. He knows that the optometrist is professionally trained to make eye examinations to search for defective vision, and that he prescribes glasses, contact lenses, or vision training.

But the optometrist functions in more sophisticated ways, too. He determines the presence or absence of external or internal pathological conditions. His examination may uncover diseases such as heart disease, brain tumor, or diabetes. He studies the coordination of the eyes, undertakes a refraction of the eyes to determine vision ability, clarity, and efficiency of vision. When a pathological condition is found to exist or even suspected, the optometrist is in duty bound to refer the patient either to his family physician or to an appropriate licensed practitioner.

Many of our manufacturers engaged in defense production have one or more optometrists who devote their entire time to caring for the vision needs of their employees. It is not only in our industrial plants but in rural areas as well that our profession is providing an indispensable service.

A survey was made not too long ago of optometric requirements in my home State of Florida. It was based on a ratio of 1 optometrist to 7,000 population, and also on 1 optometrist to 10,000 population, and it was projected to an estimated population in 1965. The discrepancy at the time of the survey on the 1 to 7,000 ratio was 277 optometrists, and on the 1965 estimation, at the same ratio, the shortage will more than double. There were 20 of Florida's 67 counties without the services of an optometrist and in several areas no professional vision care was available within a radius of 50 miles. The Florida Legislature, in an effort to help correct the situation, has provided scholarships up to \$1,000 a year over a period of 3 years to students who are citizens of Florida and who will agree to practice in designated areas of our State upon completing their optometric education. This, on the basis of a 4-year professional course, falls far short of meeting the financial requirements of students, and the scholarships are limited to five a year. This is a drop in the bucket compared with the needs of Florida alone. These scholarships are outright grants. In this legislation provision is made only for loans, which would be repaid with interest.

There are with me today several of the leaders of our profession who will cover other phases of the subject. One of these is Dr. H. Ward Ewalt, my immediate predecessor as president of the American Optometric Association. Another is Dr. Gordon Heath, of the faculty of the Division of Optometry of Indiana University and president of the Association of Schools & Colleges of Optometry. Dr. Nelson Waldman, chairman of our committee on vocational guidance whose function is to recruit students for our schools and colleges of optometry. They are doing a splendid piece of work but the passage of this legislation would greatly assist them.

Dr. Donald Springer will describe the financial problems of the young graduate entering practice. The proposed legislation would be of assistance there because the loans would be payable over a longer period of years than those which can be obtained on a commercial basis.

Dr. Frank Kitchell, president of the American Optometric Foundation, was unable to be present but has prepared a statement which I would like to have incorporated in the record. One of the functions of the foundation is to stimulate interest in and provide scholarships for postgraduate study. Postgraduate work leading to a degree of Ph. D. in physiological optics is only available on campuses where we have schools or colleges of optometry. There is a great need for expansion of this program and, again, student loans could be well utilized in this area.

In closing, Mr. Chairman, I want to thank you for this opportunity and to assure you that both myself and these who have accompanied me would be delighted to answer any questions that may be asked.

Dr. CHAPMAN. Thank you, sir. Before I introduce the specialists of my profession who are with me today for the purpose of testifying in behalf of H.R. 8546, there are certain things I would like to make known to this committee that are important to the welfare of our Nation.

It has been a privilege to travel throughout this country as president of my association and visit with not only my own colleagues but other interested parties in the health care field. At the same time I have visited all of the schools and colleges of optometry in the United States. From these trips and from these experiences I have seen the very acute need for additional services and additional personnel in the optometric field.

There has been a vivid awareness of the extreme manpower shortage which exists in this particular realm of the health care field and the need for more optometric practitioners. Additionally, I can report the necessity for my profession to be responsible for the solution of this problem. We are most grateful to be here today for the privilege of explaining our position, documenting it for this committee and seeking the help, guidance, and direction from our Federal Government in meeting this need which our country faces and about which we are deeply concerned.

I would like to point out that there are numerous departments and committees within the American Optometric Association structure which are dedicated to serving the public welfare of this Nation, and I would like to mention certain of these at this time.

Under the department of public health optometry is our vision care for the aging committee, and the committee on aeronautics and space. There are committees on motorists vision and highway safety and research. The committee on social and health care trends has been particularly active in providing vision care for the indigent of this Nation. There are other committees known as the committee on occupational vision, visual problems of children and youth, vision aid to the partially blind and the committee on contact lenses.

I point out these facts now, in this brief summary, to indicate the keen interest that my profession has in the area of public health need. Our interests go far beyond that which the individual practitioner does in his respective office to his own individual patient. We are indeed cognizant of the fact that this responsibility of optometry in the public health field is becoming even greater each passing day. In meeting this responsibility we find it is very difficult to honestly compete with the other health care professions, particularly since student loan facilities were made available to medicine, dentistry, and to osteopathy in the original bill. The competition is keen for the minds of the young men and women of this Nation, and we desperately need the help and assistance that can be given through the provisions of this act to aid us in securing for our profession and for the Nation qualified students.

I was going to make reference to the very fine legislation which my own State adopted for optometry back some years ago. Congressman Fuqua has referred to this measure in his introduction and so I shall not go into it in greater detail. It has been a tremendous help to our State in providing the type of optometric care and vision care that is needed in many areas, and it has been a far-reaching move on the part of the Florida Legislature to provide this help for its citizens.

Today, accompanying me are some of the very outstanding people of optometry throughout this Nation. I am going to introduce them at this time, Congressman Rogers, in a group. They will appear in turn without further introduction.

The first will be Dr. H. Ward Ewalt, who is the immediate past president of the American Optometric Association. Following Dr. Ewalt we will hear from Dr. Gordon Heath of the faculty of the Division of Optometry at Indiana University. He is president of the Association of Schools & Colleges of Optometry.

Following Dr. Heath will be Dr. Nelson Waldman, chairman of our committee on vocational guidance whose primary function is to recruit students for our schools and colleges of optometry throughout the country. Dr. Waldman is from Houston, Tex.

Our final speaker will be Dr. Don Springer from Alabama, president of the American Academy of Optometry. Dr. Springer will describe the financial problems of the young optometric graduate who enters practice. Dr. Frank Kitchell of the American Optometric Foundation who was unable to be present this morning has presented a statement to this committee which will be incorporated as part of the record.

I have additionally brought along another of the fine leaders of optometry, Dr. Nelson Abrahamsen, Sr., of Cleveland, Ohio, who is chairman of the Council on Optometric Education. This agency is responsible for the accrediting of our schools and colleges. He is here in case any of the committee would care to ask a particular question in the field which he represents.

I do thank you, Congressman Rogers, for the privilege of making this summary statement and presenting these gentlemen on behalf of optometry.

Mr. ROGERS of Florida. Thank you for your statement and for your being here to give your testimony to the committee. Are there any questions? Mr. Pickle?

Mr. PICKLE. I don't have a question now except I want to welcome the doctor here. I had occasion to visit with him right at the first of the session, and we had some pictures made, and I got to know him personally then and some of the people he worked with. I was glad to hear his statement and glad he is here.

Mr. ROGERS of Florida. Mr. Schenck?

Mr. SCHENCK. No, thank you.

Mr. NELSEN. No questions, thank you.

Mr. ROGERS of Florida. Thank you very much, Doctor.

STATEMENT OF DR. H. WARD EWALT, JR., O.D., IMMEDIATE PAST PRESIDENT, AMERICAN OPTOMETRIC ASSOCIATION

Mr. ROGERS of Florida. We will be glad now to hear from Dr. Ewalt, immediate past president of the American Optometric Association. Dr. Ewalt, it is a pleasure to have you here with us this morning.

Dr. EWALT. Thank you. I am glad to be here. I want first to assure the members of the committee I am not selling books. However, some of the things that I would like to present to the committee are of such a nature that I thought some of our fundamental scientific information ought to be available to the staff of the committee in order that they can look into the matter to whatever extent suited their interests and purposes.

I, too, would like to summarize the statement that has been prepared as the formal statement for the committee.

Mr. ROGERS of Florida. Without objection that will be permissible, and your formal statement will be made a part of the record at this point.

(Dr. Ewalt's statement in full along with additional literature follows:)

STATEMENT OF H. WARD EWALT, JR., O.D.

Mr. Chairman and members of the committee, I am Dr. H. Ward Ewalt, immediate past president of the American Optometric Association and a practicing optometrist in Pittsburgh, Pa. I am optometric consultant to the Surgeon General of the U.S. Army, a fellow of the American Academy of Optometry and the American Association for the Advancement of Science. I am also a member of the National Education Association and the International Reading Association.

It is indeed a privilege for me to appear before you today in support of H.R. 8546 and to answer some of your questions about the importance of optometry and the vision care provided our Nation.

Optometry is the profession specifically licensed in all the 50 States and the District of Columbia to care for vision, just as dentistry is the profession specifically licensed for dental care. Every year more than 30 million Americans obtain vision care; and the chances are 3-to-1 that you or a member of your immediate family will have a professional vision examination within the next 12 months.

The informed American—particularly you who are our representatives in Congress—should have available all the basic facts about vision and optometric care. In very brief fashion today I will attempt to inform you on such questions as—why is the need for vision care growing?—what is the education of the optometrist?—what is optometry's unique service?

The need for vision care grows as modern civilization becomes more complex. Nature made man's eyes for distant seeing—for stalking game or for looking off to the horizon. Today, in an age of science and technology, most critical seeing tasks are within arm's length. Everyone must read and study more than was true for any previous generation. Technical jobs require more accurate near-point vision.

About a hundred years ago, instruments for measuring vision were developed. Some opticians, who ground and sold lenses, began using these instruments, and soon they became known as "refracting opticians" or "examining opticians." In 1898 these specialists organized what has become the American Optometric Association, and the development of optometry as the vision-care profession had begun.

The background of optometry is comparable to the evolution of other health professions. There was a time when teeth were pulled by blacksmiths, because the blacksmith's tongs served this purpose better than anything else readily available. The barber-surgeon was once common, because only the barber had the sharp instruments best suited to bloodletting, boil-lancing, and similar "operations."

Just as the other health professions have evolved so, too, the optometrist of 1898 bears only an ancestral resemblance to the modern professional practitioner. Many sciences have contributed to a better understanding of vision and its improvement. Not only is the examination of vision and the prescription of glasses a highly developed science and art, but the optometrist has pioneered and added many innovations—visual training, contact lenses, special aids for the partially blind, and other types of specialized lenses—to solve problems for which there were formerly no solutions.

Modern optometry performs a unique and distinct vision service. It is based on the concept of functional vision in contrast to the traditional concept of the eye as a static optical instrument. This means that the optometrist's objective is to enable the patient to see clearly, comfortably, and efficiently for each specific task, regardless of demand or distance. He concerns himself with visual development in the growing child and the prevention, as well as correction, of vision problems.

Competence in optometry is gained by formal education as well as by example, precept, demonstration, and extensive clinical experience under com-

petent teachers at institutions of higher learning and by continuous programs of postgraduate education.

With its education in physiological, psychological, mechanical, physical, and geometric optics, in addition to a broad foundation in other sciences such as physiology, anatomy, and pathology, optometry provides its practitioners with a complete and thoroughly rounded preparation for the vision care of mankind. This fundamental training with emphasis on psychophysiology of vision, underlies modern optometry's concept and practice of functional vision care.

The treatment of pathological conditions and eye surgery is acknowledged by optometry to be in the field of medicine. However, for the protection of the public, about one-fourth of the optometrist's education is devoted to study of the body, eye diseases, and symptoms of other diseases revealed in the eyes. Thus the optometrist is well trained in the detection of ocular signs of pathology so that he can refer patients for whatever other professional care they may require from other practitioners and specialists.

Because the optometrist performs 65 to 70 percent of the refracting work in this country, 75 percent of the work in contact lenses, and 80 percent of the work in orthoptics and visual training—and thus first sees approximately three-fourths of all patients seeking vision care, the optometric profession is our country's first line of defense against blindness.

Dr. Galen F. Kintner, in an article in the *American Journal of Public Health*, which I am appending to this statement, put it this way: "The visual system is a generous window to a number of the patient's health problems. While the optometrist's area of service includes refraction and coordination problems (with lenses, orthoptics, subnormal visual aids and the like), his field of investigation includes much more in determining the state of health of the patient and his visual system. Conditions requiring medical or surgical treatment of the eyes are referred to an ophthalmologist. In general, referrals can be divided into two groups: the desirable but elective, and the more formal or specific referrals. Even though the public is becoming more sophisticated in its self-diagnosis, and hence its choice of health specialists, the fact is that a great number of people with vague symptoms first come to the optometrist."

As consultant to the Surgeon General of the Army, I have intimate knowledge that in our armed services optometrists take care of the vision requirements of 85 percent of our fighting men. The following table illustrates the number and distribution of the optometrists and ophthalmologists in the Armed Forces. Ophthalmologists are the eye physicians and surgeons to whom optometrists refer most of their patients who are found to have pathological or other conditions requiring medical treatment.

Optometrists in the M.S.C.:

Army: 184 (authorized ratio of 1 to 7,500 soldiers, but most training centers have approximately 1 to 5,000).¹

Navy: 59 (no set ratio).

Air Force: 162 (no set ratio).

Ophthalmologists in the M.S.C.:

Army: 71 (16 board certified).

Navy: 67 (23 board certified).

Air Force: 45 (9 board certified, 30 eligible, and 2 with 1 year training ophthalmology).

Relative distribution of optometrists and medical eye specialists, who are in civilian practice across our country, is shown in a table I am appending to this statement for the record.

Optometry has become the profession that it is because it provides a complete vision care service. As noted, there is need in our modern complex civilization for functional vision care, principally for near-point seeing tasks. It is this need which optometry fills and which accounts for the development of optometry as an independent coordinate profession, separate from medicine.

Since its early beginnings, optometry has placed emphasis on meaningful seeing. No one has "perfect vision" for all purposes—a woman at her housework, a man operating a crane, a child reading a primer in school—each of these persons should have the best possible and most efficient vision for the task to be done—and it is on this that the optometrist concentrates.

¹ The ratio figures do not include military dependents.

Optometry discovered many years ago that a person could read a Snellen letter chart at 20 feet and still have vision problems that make adequate achievement impossible. A person may be able to see perfectly well at 20 feet and lack good binocular (two-eyed) coordination at near, thereby finding reading difficult or impossible.

A person with good sight can see the chart at 20 feet and still have vision difficulties; so let me make clear now the difference between sight and vision. Sight is acuity—the ability to see forms; vision is the ability to give meaning to those forms.

Vision is a learned skill, not something solely dependent on the shape of the eye as tradition held for many generations. Skills that are learned can be taught. This is the basis of scientific visual training in which optometry has pioneered. Anatomical completion or growth leads only to minimum performance. Visual training results in the enhancement of visual performance skills.

Visual training (orthoptics) has long been recognized as an effective method of correcting some types of squint or strabismus (crossed eyes). The child who has difficulty in making the two eyes work together may turn one out of the way and use only the other. Visual training, or orthoptics, can in many instances restore the binocular skill. When the eye straightens, the child sees with both eyes.

Just as visual training may restore the skill in the crosseyed, it may also restore binocularity where the lack of it is not so obvious. There are many children, and adults as well, who suspend vision in one eye, without turning it out of the way. Intermittently, or continuously, they have only one-eyed vision. Just as visual training may restore the skill in the crosseyed, it may also restore binocular efficiency where the lack of it is not so obvious.

By the use of visual training, in combination with lenses or without lenses, optometrists solve not only these problems, but many others as well. Through visual training one can learn to see several words at once, instead of only a few letters or syllables, and to perceive more quickly, all of which is of great value in reading. It can teach accuracy and speed in seeing.

As the very able chairman of the subcommittee, Congressman Roberts, knows from his special wartime training in the field of "recognition" at Purdue University, visual training was found to be the only successful method of training airmen to quickly distinguish enemy from friendly aircraft during World War II. As practiced by optometrists today, visual training has many uses, particularly for those schoolchildren who for some reason have failed to develop necessary vision skills.

The concept of vision as a learned skill is probably best described by Dr. Arnold Gesell in "Vision—Its Development in Infant and Child," a copy of which I am leaving with the committee in case you should desire further information on this subject.

A proper vision examination takes into account all areas of visual performance. It must ask and answer such questions as: Can the patient focus and point his eyes together as a team? How accurate is his vision when he looks from one object to another? Can he sustain his visual performance comfortably and efficiently and over a protracted period of time when he is reading? What is his speed of visual perception? Does he have a full field of vision? And so on.

Vision problems are not the same eye problems. Classically, eye problems are focus problems and are commonly known as farsightedness, nearsightedness, and astigmatism.

Low visual performance is a major contributor to reading problems. Helen G. Robinson in "Clinical Studies in Reading, Part II," Educational Monograph No. 77, University of Chicago Press, says, "The only visual test that consistently differentiated high achievers from low achievers were tests involving measures of binocular ability."

Dr. Lois B. Bing, then chairman of the American Optometric Association's Committee on Visual Problems of Children and Youth, in the committee's report to the 1960 White House Conference on Children and Youth, said, "Vision problems at the college level require far more concern than has been given them up to this time. As college populations have expanded, and as the number of students taking advanced work has increased, more and more students are finding they cannot adjust satisfactorily to the reading demands made upon them.

"A recent study at Bradley University in Peoria, Ill., reveals that nearly two-thirds of all of the freshmen (61.9 percent) had (corrected or uncorrected) vision problems on entering college, and more than a third of these (23.9 percent of all freshmen) had unsuspected vision problems * * *. The optometric profession has been increasingly concerned over the expanding need for visual care for the students of college level."

These problems should be met before they reach the college level. Lois Bing says, "Optometry feels that adequate preventive eye care programs drafted by optometry for children of all ages should go a long way, if widely adopted and properly supported, to establish and maintain good visual habits among the elementary and secondary school children which will carry over with these children into the college level and thus avoid the vision difficulties now so common on our national campuses."

Ideally, a program of developmental vision should begin at birth. As Lois Bing says, "when the nascent reflex patterns of eyes, hand, touch, balance, hearing, taste, and smell are beginning to organize within themselves and in relation to each other. Actually, vision development has already gone through many stages before birth. Thus, shortly after birth, specific vision activities may be set up for the baby, and the child will welcome and respond to appropriate visual stimulation."

Henry W. Hofstetter, a member of the board of trustees of AOA and director of the Division of Optometry at Indiana University, makes a similar point in a chapter called "Optometry and Children's Vision," contained in a book titled "Vision of Children," a copy of which I would like to give to this committee.

In Dr. Hofstetter's words, "That optometrists, as well as other professional groups are becoming vitally concerned with developmental aspects of childhood is apparent in many phases of activity. Current optometric educational programs frequently include such topics as visual readiness for reading, vision and reading, achievement, management of myopia, asthetic aspects of children's eyewear, visual screening in schools * * * optometric device to the child's parents, vision of infants, visual aspects of classroom design * * *."

Optometrists believe in preventive vision care. Dr. Bing has described for us how an infant learns to see in *Baby Post* magazine: "There can be endless fascination in watching a child progress from one stage to another as he learns to see and get meaning out of the information that his eyes so avidly gather. At first he checks everything with his mouth, as if he didn't trust his eyes. What an achievement it is when he develops hand-eye coordination, when his eye can guide his hand or mouth."

"You can watch your child build his space world. As you would expect, he is the center of it. At first he has little awareness of anything beyond arm's length. Slowly he expands this little space world about him, literally learning what and where the objects are that his eyes see. This is a developmental process involving not only his eyes, but his whole being."

"You will notice what the Gesell research has pointed out, that he develops the two sides of his body alternately. For a few days or weeks he will explore this expanding world with his right hand, right foot, and right eye. Then, in turn, will come a period of concentration on the left hand, left foot, and left eye. Soon the cycle is repeated and growth and development take place."

How well your baby sees may determine how well he will grow and develop. Vision may affect a child's posture. It will surely affect his personality.

When a child does not see properly with the two eyes together, he may tilt his head or continually squirm into an unnatural posture as he avoids using one eye while looking at his toy or his book. Then he grows that way with a head tilt, shoulder slump, or curved spine. There are thousands of examples. If he is too nearsighted, he may have no interest in games with other children, and later in sports. If he is too farsighted, he may avoid near activity and have trouble with his lessons when he gets to school. It is easy to see how frustrations like these can affect a child's personality.

Vision, then, is very important in your child's growth and development. It is your baby's most precious sense. He will gather more information of the world about him through his eyes than all the rest of his body. A child should progress to sustained two-eyed vision; unless he does, he should have care as soon as possible.

Preventive vision care includes a thorough examination at the age of 3 to foresee future trouble. By that time it is possible to determine whether there is a tendency toward cross-eyedness, nearsightedness, or farsightedness, and whether the many visual skills that the child will need are beginning to develop as they should. Another benefit of that early examination is that it provides a record with which to compare later developments. With this accurate history, the optometrist can make a better evaluation of any symptoms that appear as the child grows older.

As he grows up, the child's vision may be "perfect"—according to the antiquated classical theory of 20/20 vision (visual acuity). Yet something is obviously wrong, and what possibly is wrong is that there is interference in visual perception. The child may not have learned skillful visual performance.

The optometrist must take into account the intricate and complex learned skills whereby the eyes do work together as a team—and perhaps he (the child) has developed distortions in various areas of performance. Visual training (orthoptics) can often restore his binocular skill and raise the level of his visual performance.

The Snellen chart and its emphasis on 20/20 sight will not bring out such problems. Lois Bing, whom I quoted earlier, makes this important point. She says, "In the field of vision screening in the schools, optometry has found that the multiprofessional approach, in which optometrists, ophthalmologists, school administrators, public health officials, teachers, and parents cooperate in the development of a program, provides the best hope of achieving a successful and effective and practical result. In practical operation, such an approach is being used with encouraging success in Euclid, Ohio, schools, where children are tested not only by Snellen chart for visual acuity at 20 feet, but by additional tests which reveal difficulties in using the eyes together with ease and efficiency for boardwork, deskwork, and reading."

When his eyes work together as a team, the child will learn faster, and retain more information. "Vision," Dr. Arnold Gesell has aptly put it, "is the key to the child's whole individuality * * *. To understand the child, we must know the nature of his vision."

Because the child can see small letters clearly at 20 feet and there are no obvious errors in the optical systems of either eye, the diagnosis is often that the child has healthy eyes and there is nothing wrong with his vision. The mistake here lies in the confusion between an eye problem and a visual problem. There are many children with 20/20 sight who have vision problems: They do not have vision for reading. For comfortable, easy seeing, the images must merge into one in the brain. If this does not happen, he may reverse letters or entire words, may see only one letter or one syllable of a word at a time, instead of seeing the entire word at one time. He may lose his place easily and have to follow his finger. He may see the chalkboard clearly, but focuses at a reading distance with difficulty.

When he has such vision difficulties, he is likely to be classed as a reading problem, or he may be considered lazy or disinterested. Teachers may reprimand him, parents castigate him, schoolmates tease him. And the child comes to feel that he is unjustly punished, and in time is likely to develop severe behavioral problems.

Repeating what I said earlier: The ideal time to start working for efficient vision is when the child is very young. Optometrists use a battery of developmental vision tests when working with a child only 16 weeks old. Modern optometry has a major role to play in aiding children in the development of adequate vision skills. Good vision skills developed early prevent such problems as I have just indicated. Such developmental investigation can chart the child's visual behavior and does, for example, uncover deviations from normal vision behavior—such as the child using only one eye, inadequate oculomotor patterns, poor form perception.

If the child does not evidence any visual difficulties, the time for the first important examination is at age 3 or just prior to his starting kindergarten. If any vision defect is uncovered at that point, the optometrist with the parents' cooperation can often lay out a training program to encourage normal, efficient vision development in the growing youngster.

As stated previously, modern optometry is based on the concept of functional vision, which takes into account not only the shape of the eyeball—the mechanistic-physical aspect of eye care—but the entire visual process, both physiological and psychological. It is important to know how well the child's

visual capabilities are geared for all of the normal demands made upon him, particularly the demand for sustained, near-point visual performance.

For it is precisely that near-point seeing task that is becoming increasingly important—both in the child's and the adult's life in today's civilization, and it is in this vital area of functional vision care that optometry has carved out its unique professional specialty and has made the greatest advances in recent years, providing the child—but also the adult—with the best possible vision for his major needs. Just seeing clearly is not enough. Each child—and each adult—must see comfortably and efficiently.

I have stressed the importance of early childhood vision care and vision development because it is a fact that a large number of those of us who are grown up today have been handicapped because we did not have vision care at an early age. Lack of proper training in vision usage has prevented many of us from entering professions which demand extensive education—and the country as well as the individual suffers. Who knows how many scientists, engineers, educators, writers, and other professionals were lost to our Nation because of lack of vision care? What may have been regarded as laziness or lack of ambition during the school years of such people, might well have been the result of inadequate visual performance. The loss is great—to the individual, society, and Nation.

One of the chief responsibilities of the optometrist is to prepare a young person for sustained seeing activities—one of those activities being reading. In a good many cases, this can be a crucially important factor in a person's life. After all, those who want an education must be capable of the physical act of reading before they can become capable of understanding and absorbing what they are reading.

Vision problems are not only contributing causes to such educationally handicapped—they are also important aspects of the problem of the retarded child. It's only been in the past decade that much has been done for the brain-injured or severely retarded child. Optometry is proud to have had the opportunity to play an important part in the teamwork approach to the needs of such children. A number of studies reveal that many problems of retardation have at their base a vision problem.

I would like to leave with the committee a copy of the "Report to the 1960 White House Conference on Children and Youth," which was presented by the American Optometric Association. I would like to call your attention to appendix B, page 28, which contains the paper entitled "Optometric Visual Care for the Brain-Injured Child," by Dr. G. N. Getman.

The retarded child presents a challenge to us, and so does another youngster with problems—the school dropout. The U.S. Department of Health, Education, and Welfare estimates that there will be a total of 7.5 million dropouts in the period 1962-70. This represents 16.3 percent of our total elementary and junior high school student body—approximately 46 million boys and girls.

A recent Labor Department study titled "Manpower Research" pointed out that "the educational attainment of the bulk of the Nation's adult population is below the high school graduation level. In 1960, 59 percent of the adults aged 25 or older had less than 4 years' high school education * * *. In every State, at least 40 percent of the adult population is short of the 4-year high school mark."

What relation do these statistics bear to vision?

A survey of pupils in the Euclid (Ohio) public schools who did not complete high school indicates that these children had one deficiency in common: a reading deficiency which expressed itself in poor or failing grades in reading in elementary school and in failing grades in English in secondary schools.

In other words, there is a considerable correlation between dropouts and reading deficiency which traces back to vision problems.

A comparative study of the incidence of reading disability in several clinical settings undertaken by Fabian, and quoted by him in a paper presented at one of the conferences of the American Orthopsychiatric Association, revealed the following: an incidence of 10 percent in a school sample; 33 percent in a child guidance clinic sample; 62 percent in a sample from a child placement agency; 73 percent in the population of a psychiatric hospital's children's ward; and 83 percent in a sample of predelinquent and delinquent children.

And on this matter of delinquency let me quote another book, "Reaching Delinquents Through Reading," by Melvin Roman. He says that approxi-

mately 10 percent of the school population of America requires special aid because of retardation in reading. A survey conducted by the writer at the Manhattan Children's Court revealed that 84 percent of cases carried by the treatment clinic present the problem of reading retardation in conjunction with personality disorders and antisocial behavior.

Dropouts, delinquency, vision disorders. Five hundred and fifty-five thousand juvenile delinquent cases were tried in court in 1962. These offenders were in the 10 to 17 age group (representing 1.8 percent of all children of that group), this being the group in which the largest number of dropouts obviously occurs.

Now we already know that faulty vision or vision problems if not corrected can in time cause a youngster to be unsuccessful in school and unable to study effectively. Unless his family insists that he remain in school, or unless he has visual care which helps him solve his reading-and-seeing problem, he is a likely dropout candidate. And so, a vicious cycle may well result in adding another delinquent—a boy or girl who might have been saved with the aid of proper, professional visual care.

The growing lack of jobs for young people may then make it impossible for such a youngster to find a job. And if he does apply, his visual difficulties and limited education might make him unsuited for certain types of jobs.

We have thus lost a productive member of the American community. And the cause of that loss may well lie in the field of vision * * * in our neglect to help that youngster when help might have made the difference between a useful and nonproductive life.

In American industry the results of lack of vision ability—even where there are no obvious physical defects—can be measured in millions of dollars and thousands of wasted man-hours.

Just as an example, let me use the illustration of one large printing company—R. R. Donnelley & Sons—which found that proofreaders who meet the minimum visual requirements are 37 percent more accurate than those who failed the minimum visual tests, have 7.9 points higher efficiency, and produce a net productive value of 12 cents per man-hour more than those failing to meet minimum requirements.

Another illustration: In a Washington, D. C., Federal Government office, a vision program, plus improvement in lighting, brought about an increase in worker efficiency, conservatively rated at 5.5 percent. Translated into cash value, it means that the 95 employees in that office, following the vision program and lighting improvements, created a payroll saving of \$13,229. Using the same scale, if a business had 1,000 employees, it might save \$139,250 over a period of a year. Good, efficient vision pays—in many ways.

And good, efficient vision is obviously a sound business investment—and a sound national investment. Let's remember that our 300,000 industrial plants employ about 16,651,000 people.

Now, let's look at what savings can be had in man-hours based on the figure I mentioned for the printing plant, which as the result of a vision care program found that having good vision produced 12 cents more per man-hour.

Translated into our national industrial plant with its 16.6 million employees, a vision care program would result in savings of about \$4 billion annually.

In other words, the \$4 billion saved would in effect be added onto the gross national product of \$585 billion, instead of being lost to our gross national product, as indeed that \$4 billion now is lost.

Well, how do we obtain these savings for industry and for the Nation?

To service the 300,000 industrial plants, we would need about 4,800 optometrists in addition to those now practicing. That sounds like a large order—and at the present moment it is, when we only graduate about 500 students annually from our schools of optometry. But it's a very small number in terms of the real service they could render to industry and nation.

I did not pull that figure out of my hat or even my head. It is based on the fact that the optometrist's actual working time—when you deduct such things as weekends, vacations, attendance at postgraduate educational meetings, etc.—amounts to about 250 days. Since there are 300,000 plants, and he needs about 4 days for each plant, that means that optometrists must spend 1,200,000 days a year to service those plants. If you divide the 1.2 million days by 250 days the average optometrist will work, the figure you come up with is 4,800 optometrists.

A number of optometrists work as consultants to industrial organizations. The first day they visit a plant, they obtain an overall idea of plant layout—in particular, they watch for potential dangers to sight and vision. The follow-

ing days they spend looking over the shoulders of each worker. They watch everything—from his posture to the type of work he does; they measure the distance from his eyes to the instrument he uses—be it a lathe or a blueprint.

They evaluate the employees' sight requirements as they relate to the specific task each man has. In addition, they look for ways to prevent eye injuries and accidents that may result from faulty vision. They search for ways to increase production and eliminate waste caused by defective vision.

They cooperate with plant safety experts and perhaps with the medical staff to find and eliminate work and work processes which present eye hazards and to determine protective requirements for workers, including whatever protective eye devices may be needed. They advise foremen as to special and specific visual problems in the plant.

On the basis of their personal, in-the-plant observations, they make their recommendations to management which might include recommendations to control the quality, quantity, and direction of light; using paint which will improve lighting utilization; elimination of certain hazards to vision; wearing of certain types of protective goggles for some men in the plant; etc.

Here is both vision care and preventive vision care. Here is a job of major proportions that needs to be done. Yet we have not, at this moment, the manpower to do it.

H. W. Hofstetter reports in his book, "Industrial Vision," that the total annual incidence of eye injuries alone is about 300,000. I would like this committee to have a copy of Dr. Hofstetter's book.

Anybody in the management field knows that manpower is the most expensive single factor in production costs today. Therefore, it is most important to use personnel at top efficiency. Vision is the key to man's brain, for 85 percent of all he learns comes to him through his eyes. His vision, therefore, is the human element that is the key to production.

Industrial managers are practical businessmen. And it is not difficult for them to establish the effects of a vision program on training time, labor turnover, sickness and absence costs, reduced spoilage, and accident expense. These factors, when eliminated or reduced, mean less production costs and an increase in profit margin.

There are many factors which influence the health level of any business. No claim is made that a vision program will cure, by itself, all the maladies of absenteeism, labor turnover, insurance costs, or the more complicated ailments relating to labor relations. However, a well-conceived continuous vision program properly integrated into personnel, safety, and medical activities of any industry has sufficient influence to validate the effort.

Research in industrial vision has developed a method of vision testing and analysis that will give industry a clear-cut statement of the dollars and cents value of good vision and good seeing, to bring about a realization of the importance of adequate visual attention of industrial employees. Results show that from 20 to 50 percent of the industrial employees need visual help for the jobs to which they are assigned.

The optometrist has a major role to play in industry, and in the future he will play that role in the best interests of individuals and business organizations.

There are about 90 million Americans who are of great concern to the optometrist. These are the Nation's drivers of private cars and commercial vehicles. We are constantly assailed by horrifying statistics concerning highway accidents and deaths. The optometrist cannot prevent all of them. But he can help to reduce them by making sure that all drivers have vision adequate for modern freeway driving.

Each year about 40,000 people are killed in auto accidents, hundreds of thousands more are involved in nonfatal but often serious accidents. There has been much discussion of the reckless youngster who speeds down streets and highways. A study made in California showed, however, that drivers involved in accidents with other cars were largely people over 65 years old. And the National Safety Council says that the fatality rate climbs rapidly for drivers over 70 who are involved in accidents. Our own motorists' vision and highway safety committee found that 80 percent of drivers 60 years and over have visual problems which make them risks on the highways.

Let's not forget in that connection that by 1975 nearly half the adult population of the United States will be over 65. This is, of course, not an indictment of our elderly drivers. But the fact remains that when you compare

involvement in motor vehicle accidents according to age groups, the rate for the older driver is 45 per 100,000 population, while it is only 25 for people of age 25.

Obviously, more attention must be given to vision care for this group, but not for this group alone. When you remember that about half of our population needs some visual attention, it is obvious that a large group—a group larger than older drivers—among the driving population is in need of such attention. It should be realized, however, that a great many States have a "grandfather clause"—once an individual obtains a driver's license, he can go on driving a car indefinitely without any further examination.

Studies indicate that 90 percent of all driving decisions are based on the ability to see, yet probably about half of today's drivers fall below acceptable vision standards. Yet 40 percent of today's drivers are over 40 years old, when vision defects become more pronounced.

A few States have compulsory driver reexamination. Most do not. As long ago as 1941, New Jersey began a program of reexamination of all drivers over 65 years old who had been in a reportable accident, no matter how minor. As a result, several thousands had their licenses revoked. North Carolina reexamines all drivers—totaling more than half a million—every 4 years. In Illinois, Delaware, Maine, and New Hampshire there is a requirement for the periodic reexamination of senior citizen drivers.

Good vision as far as driving is concerned is not just a question of having 20/20 sight. Driving demands vision that is clear, complete, and quick, each of which is a separate skill of the eye. Good peripheral vision is important—how much you can see on each side without turning your head or eyes. So is depth perception—your ability to judge distances and direction. And night vision—your ability to see under low illumination and your adaptability to darkness. Glare resistance is also important—your ability to see against headlights or sunlight and the rapidity with which you can recover from being blinded by glare.

Good driving vision, then, means many things, all of them important to safe driving.

Optometrists work with many of the State motor vehicle administrations. Quite a few work on a voluntary basis with driver training courses in the Nation's schools. But again, we must come back to the lack of sufficient manpower in this profession.

A population of 191 million people is served by approximately 17,000 practicing optometrists. In other words, the rate is 1 optometrist to every 11,279 persons. Even though not every American needs vision care today, this is still an alarming ratio. Plainly speaking, it means that the optometrist simply cannot do all the jobs that need to be done.

Despite such lack of manpower, the optometrists of the Nation have contributed their services to making the highways safer, and are anxious to do more. The American Optometric Association's Committee on Motorists' Vision and Highway Safety has worked closely with numerous organizations, bringing to their programs the necessary professional and technical knowledge of our most precious sense—vision.

"Optometry," in the words of the past chairman of AOA's Committee on Motorists' Vision, Robert C. Sneller, "occupies a unique position in the field of highway safety and can make a substantial contribution to the fund of knowledge necessary to many remedial programs. Almost all actions and decisions of a driver are dependent upon what he sees. Thus, almost all factors relating to movement and control of the motor vehicle are at least in part within the scope of optometry. The optometrist, as a professional man and responsible citizen, is anxious to lend his efforts to the further reduction of fatalities, injuries, and loss of property due to auto accidents." I would like to leave with this committee a copy of Dr. Sneller's book, titled "Vision and Driving."

I am also leaving with the committee a pamphlet entitled "The Optometrist and Safe Driving," which spells out the role of the optometrist in this area.

On the highway, in the school, in industry, and the office the optometrist's help is needed—and critically needed. And there are yet other areas of our national community where his services would be a personal as well as an economic advantage to many of our citizens. As part of the war on poverty, a good many men will have to be retrained, and this is a big job. For the individual to be retrained, it will not be an easy thing. It will become very much harder for a man without good, efficient vision. And a good many of these men will be in middle

and upper age brackets. The visual part of the entire retraining program will be of great importance.

Since the Department of Health, Education, and Welfare will be principally concerned with this campaign, optometrists should be on the Department's staff to evaluate programs and plans, to supervise the carrying out of plans—all in the interest of vision care.

Optometry occupies a unique position in the health care field. It renders visual care in the physical sense through the measurement of the refractive powers of the eye, and the visual training to develop a high level of visual performance skills for accurate perception of objects in space. But it also gives advice regarding environmental factors which may affect visual efficiency. This is certainly true in office and industrial work which the optometrist undertakes.

Optometrists also work with the near blind, including near-blind children. Time was when educators believed that students with limited vision would damage their eyes further if they used them for classroom work. Today it is realized that some children, at least, who have limited vision, should be working in the classroom for all or part of their educational process. This is the result largely of the renewed interest in exact refractions and in the use of low vision optical aids.

There is a recognition today that not all who are classified as legally blind are in effect completely unable to see. The optometrist has developed many effective aids for the partially blind, and it is no longer uncommon for the legally blind persons, some of whom are on blind pensions, to have their vision restored sufficiently to read or watch television. Optometrists have led the way in improving telescopic spectacles. They are a boon to children—and to the aging whose number is rapidly growing.

The new philosophy here is to keep the partially seeing child in a normal school environment as much as possible. Thus, he can lead a normal school life. He can learn and play with his normally seeing classmates and not feel set apart from them. Thus, he is better prepared for life than if he had been kept apart from the "normal" child of his own age, and learns at an early age how to live with his handicap and how to make the most of his total abilities in a normal environment.

Such an approach to the problem of the child with limited vision was possible only when the idea that one had to conserve the child's vision was recognized as being faulty. The fact is, that properly supervised and guided, a partially seeing child does not wear out his limited vision. Rather, he enhances and develops it, and thereby his own role in life as well.

Optometry believes in dynamic progress, and not in just making the best of what is available. Thus, to improve a partially seeing child's vision, it can give him specialized vision aids—including telescopic and microscopic types of eyeglasses which often enable him to read even the smallest type. But again, this is not enough. The optometric profession has evolved a program and a concept of low-vision rehabilitation which, in the main, makes these points: that the child or adult patient utilize rather than "conserve" his vision; that he shun the sheltered life and instead take an active part in it and in the education he needs for life.

In such ways does the optometrist help to raise the visual efficiency of America. But more, much more, needs to be done; and to do it we need more optometrists.

This means that more students and prospective students of optometry should receive the financial assistance that will enable them to obtain or continue their education. Medical and dental students have available thousands of loan dollars for every loan dollar available to optometry students.

Under these circumstances it would seem self-evident that optometry students be accorded the same privilege of borrowing and paying interest on student loans as the medical, dental, and osteopathic students. If you vote favorably on these amendments, and I urge you gentlemen to do so, the money you will be lending these students will be a pittance compared to that now being provided to the other health professions.

Failure to act favorably will result in a reduction of the number of students who will study optometry in the years to come; it will mean a reduction in the number of qualified optometrists when the country needs more, many more, to perform the vital services which only optometry can perform. It will mean that the profession would have to abandon some of the areas it is investigating and developing, or at least greatly reduce some of its work in those areas.

It is almost certain that untrained laymen will occupy the void created by the shortage of professional specialists and, gentlemen, that is not the way to improve the Nation's vision.

On the other hand, passage of this bill will go a long way toward insuring a continued flow of able, well-trained optometrists into vision care and into the necessary research connected with vision care. Your support will be appreciated not only by us, the Nation's optometrists, but by the American people as a whole, and in particular by that vast segment of our population which is or will be served by optometry.

Thank you very much for your patience. I shall be happy to answer any questions that any member of this committee may wish to ask.

APPENDIX

Licensed optometrists and certified ophthalmologists related to the population of the United States of America

State	Population	Certified ophthalmologists	Population per certified ophthalmologist	Licensed optometrists	Population per licensed optometrist
Alabama.....	3,151,000	28	112,536	207	15,222
Alaska.....	206,000	3	68,667	16	12,875
Arizona.....	1,136,000	21	54,095	86	13,209
Arkansas.....	1,768,000	14	126,286	151	11,709
California.....	13,922,000	452	30,801	2,269	6,136
Colorado.....	1,673,000	53	31,560	227	7,370
Connecticut.....	2,252,000	81	27,824	295	7,634
Delaware.....	438,000	9	48,666	35	12,514
District of Columbia.....	831,000	51	16,294	114	7,289
Florida.....	4,098,000	84	48,786	382	10,704
Georgia.....	3,779,000	44	85,886	290	13,031
Hawaii.....	584,000	19	30,737	60	9,733
Idaho.....	640,000	10	64,000	85	7,529
Illinois.....	9,637,000	228	42,268	2,402	4,012
Indiana.....	4,533,000	67	67,658	510	8,888
Iowa.....	2,799,000	35	79,971	396	7,068
Kansas.....	2,136,000	31	68,903	289	7,391
Kentucky.....	3,040,000	32	95,000	284	10,704
Louisiana.....	3,068,000	41	74,829	257	11,938
Maine.....	943,000	20	47,150	152	6,204
Maryland.....	2,895,000	49	59,082	194	14,923
Massachusetts.....	4,866,000	157	30,994	998	4,876
Michigan.....	7,803,000	119	65,571	879	8,877
Minnesota.....	3,321,000	83	40,012	469	7,081
Mississippi.....	2,185,000	15	145,667	138	15,833
Missouri.....	4,255,000	90	42,278	630	6,754
Montana.....	666,000	9	74,000	94	7,085
Nebraska.....	1,452,000	24	60,500	219	6,630
Nevada.....	267,000	9	29,667	26	10,269
New Hampshire.....	572,000	9	63,556	87	6,575
New Jersey.....	5,627,000	141	40,227	838	6,715
New Mexico.....	830,000	13	63,846	65	12,769
New York.....	15,888,000	694	22,893	2,003	7,932
North Carolina.....	4,498,000	45	99,956	317	14,189
North Dakota.....	644,000	10	64,400	73	8,822
Ohio.....	9,200,000	140	65,714	1,172	7,850
Oklahoma.....	2,277,000	24	94,875	274	8,310
Oregon.....	1,769,000	50	35,380	317	5,580
Pennsylvania.....	11,043,000	290	38,079	1,640	6,733
Rhode Island.....	862,000	13	66,308	160	5,386
South Carolina.....	2,370,000	22	107,727	161	14,720
South Dakota.....	702,000	8	87,750	110	6,382
Tennessee.....	3,463,000	56	61,839	337	10,276
Texas.....	9,138,000	157	58,204	850	10,751
Utah.....	851,000	22	38,682	89	9,562
Vermont.....	376,000	9	41,778	41	9,171
Virginia.....	3,797,000	41	92,610	268	14,168
Washington.....	2,722,000	63	43,206	387	7,034
West Virginia.....	1,976,000	26	76,000	172	11,488
Wisconsin.....	3,862,000	78	49,513	508	7,602
Wyoming.....	316,000	7	45,193	39	8,103
Total.....	171,147,000	3,787	45,193	22,062	7,758

Sources: Blue Book of Optometrists, 1958; Red Book of Eye, Ear, Nose, and Throat Specialists, 1959 Directory of Medical Specialists, 1957; Bureau of the Census, Statistical Abstracts, 1958.

VISION AND SCHOOL ACHIEVEMENT

IMPORTANCE OF VISION

More than 80 percent of all school tasks are based on vision.

Vision is the key to a child's whole development, according to the Gesell Institute of Child Development. Not only school achievement but personality, posture, and adjustment to life are closely integrated with vision development.

Many retarded readers have neglected vision problems.

Four out of ten grade school children in the United States are visually handicapped for adequate school achievement.

ELEMENTS OF GOOD SCHOOL VISION

Near vision—ability to focus and see clearly and comfortably with both eyes and each eye separately at a distance of about 15 inches. This is the distance at which most school desk work is done.

Distant vision—the same as above for a distance of 20 feet or more. This is necessary to see the chalkboard, to enjoy motion pictures and television, and to engage in sports.

Binocular coordination—ability to make the two eyes work together. This is necessary for art work, handicrafts, and play activities, as well as to read efficiently.

Adequate field of vision—ability to see to both sides and up and down while focusing on a small target. This saves unnecessary eye and head movements and is essential for participation in sports and for personal safety.

These and many other requirements for adequate vision must be considered in a complete vision analysis, especially for the schoolchild. Because most school tasks are performed within arm's length, it is not enough to determine whether a child can read the Snellen chart at 20 feet or to prescribe corrective lenses to bring them up to that ability. How well a child's visual capabilities are geared for all of the normal demands made upon him, particularly the need for sustained, nearpoint vision performance, must also be determined.

VISION EXAMINATION

Modern optometry is based on the concept of functional vision. This takes into account not only the shape of the eyeball, but also the entire vision process, both physiological and psychological.

Any complete vision examination for a child cannot be done hurriedly. It often takes an hour for all of the necessary tests and sometimes more than one visit.

A case history is an essential part of a child's vision examination. It should include symptoms observed by parents and teachers, general health history, developmental history, and the child's attitude toward school and play activities.

There should be a thorough examination for eye disease.

Both the examination and correction provided should pertain to actual use of

CORRECTION

For refractive errors (such as nearsightedness, farsightedness and astigmatism) either conventional glasses or contact lenses (for the older child) are usually prescribed. Lenses may also be prescribed to enable the child to function with greater ease and efficiency.

Visual training or orthoptics is the answer to many problems of muscle imbalance, where the two eyes do not work together as they should. It is often the means by which strabismus (crossed eyes) may be corrected. Sometimes a child may be trained to improve the vision of a lazy eye (amblyopia).

The vision specialist's advice should be followed on how to use the eyes, on when to wear glasses (for reading, play, all schoolwork, etc.), and on proper light and proper posture when doing close work. All of these are important in correcting vision problems.

With the aid of modern science all but a few children can have their vision brought up to par. Few health problems respond so completely to proper professional care.

VISION SCREENING

The American Optometric Association recommends a complete, professional visual examination before a child enters kindergarten, and annual checkups thereafter to provide maximum preventive care and early correction. However, the achievement of this ideal for every child is not yet within the foreseeable future.

In the meantime, many schools and parent-teacher groups render a valuable service to the vision conservation of the schoolchild by conducting preventive education and vision screening programs.

While even the best school vision screening programs fail to detect all children who are in need of professional care and sometimes refer those whose vision is adequate, the value of such programs is unquestionable. Every school should offer the best screening program possible within the limits of available resources.

The limitations of the Snellen chart at 20 feet as a sole criterion for vision screening are now well known. Numerous other tests have been developed and are readily available for school use of help determine which children need professional care.

An important part of any screening program is the observant parent or teacher who watches for symptoms of vision problems particularly while the child is reading.

SYMPTOMS TO WATCH FOR

- Losing place while reading.
- Avoiding close work.
- Body rigidity while looking at distant objects.
- Holding reading material closer than normal.
- Excessive head movements.
- Poor sitting posture and position, or facial distortions while reading such as frowning, excessive blinking, scowling, or squinting.
- Tilting head to one side.
- Tending to rub eyes.
- Thrusting head forward.
- Headache.
- Tension during close work.
- Little or no voluntary reading at home.

In general, any child in the lower third of the class should have a complete eye examination, particularly if he seems to have ability to achieve at a higher level. Any child who is not working up to within reasonable limits of his own capacity should also have a complete vision examination.

HOMEWORK CORNER

The schoolchild should have a suitable place for homework—a corner, if not a room, that is his or her own.

Such a place should be evenly lighted, without glare and without large dark areas. If possible, the room should be painted in light pastel colors that reflect rather than absorb light. It should be comfortable and attractive. It should be a place the child likes.

Chair and table should be of the right size for proper posture.

Small children should have reading matter of large type—the smaller the child, the larger the type.

Children below the third grade should not concentrate for more than 15 or 20 minutes on close work without looking up to relax their eye muscles and whole bodies.

NOTE.—This pamphlet, prepared by the American Optometric Association, St. Louis, Mo., is published in the interest of furthering the visual welfare of the American people; 12,000 licensed professional optometrists, members of the American Optometric Association, serve the vision needs of 60 million Americans.

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OPTOMETRY'S ROLE IN HEALTH MAINTENANCE—A STUDY OF REFERRALS

(Galen F. Kintner, O.D.¹)

Optometrists see large numbers of people, some of whom require referral to other health personnel. This study reports on the referrals made by optometrists to ophthalmologists, general physicians and others, and suggests means for making more effective use of optometrists referrals in health care.

OPTOMETRIC REFERRALS

Most patients seeking the services of an optometrist have, or presume to have, symptoms of disorders connected with the eyes or their use. The optometrist, in taking a careful case history, observing the patient, making various tests and in evaluating his findings, must decide if solution of the patient's problem lies within his circumscribed field. This is a differentiating activity requiring skill and understanding since many symptoms of visual disorder are similar to those manifest by a patient with general disease, dental, or eye health problems. If other than optometric services are required, the optometrist refers his patient to other health professions or agencies for further attention. Thus, the optometrist in his routine practice regularly originates referrals to other professions as part of his responsibility to his patients. This report is concerned with various aspects of these referrals.

The visual system is a generous window to a number of the patient's health problems. While the optometrist's area of service includes refraction and coordination problems (with lenses, orthoptics, subnormal visual aids, and the like), his field of investigation includes much more in determining the state of health of the patient and his visual system. Case histories are revealing; the reflexes of the eyes and adnexa are rich sources of neurological information; the appearance of blood vessels, tissue structure, and pigmentation are prime indicators of both general disease and localized diseases of the eye. The normal physiology and anatomy of the eyes is so well understood that any deviations from it is readily recognized by the observant optometrist.

As the optometrist originates many referrals his activities often partake of the nature of the general practitioner (1), rather than that of a specialist. Even though the public is becoming more sophisticated in its self-diagnosis (2) and hence its choice of health specialists, the fact is that a great number of people with vague symptoms come first to the optometrist. In serving these patients the optometrist frequently consults with the general practitioner to insure correct referral. Conditions requiring medical or surgical treatment of the eyes are generally referred directly to an ophthalmologist. Close cooperation between the optometrist and the consultant contributes to more efficient use of community health resources.

FORM OF REFERRALS

Referrals (3) of patients by optometrists take many forms depending upon the factors that the patient's problem and degree of urgency may present. On the one hand it may be such an acute situation that he actually accompanies the patient to the physician conferring with him on the signs and symptoms that actuated the referral. At the other end of the scale, the optometrist may decide that the patient need only be given the recommendation that he see his physician or dentist at his early convenience. Between these two extremes are all gradations, with all types of communication between the optometrist and the other members of the health care professions to whom he sends his patient.

¹ Dr. Kintner is an optometrist, and a member of the district board of health, Lynden, Wash.

This paper was presented before the medical care section of the American Public Health Association at the 88th annual meeting in San Francisco, Calif., Nov. 2, 1960.

In general, referrals can be divided into two groups: the desirable but elective and the more formal or specific referral. The former presents the larger portion of the direction of optometrists to their patients to seek the service of others. These referrals are for conditions of less than an acute nature. Dental caries, periodic health examinations, obesity, general hygiene, and such subjects of health management are examples of the matters that an optometrist typically calls to the patient's attention. Rare indeed is the older patient that does not need some encouragement for better health management.

The present study is concerned with the more formal or specific type of referral, characterized by the fact that the optometrist not only undertakes to motivate the patient to seek the services of others but also initiates the communications with the essential third party to whom the patient is referred. In this type of referral the optometrist not only determines that the patient needs the services of others but that these services are required at an early date and with more certainty than the product of casual conversation or direction. These referrals are generally made to a specific practitioner or office—always consulting the patient on his choice. Communication is between principals and typically generates more return discussion between them in the patient's interest.

To date, no information with an authoritative background was available on this subject of optometric referrals. In the development of their activities, several committees of the American Optometric Association felt that such a study would be desirable for several reasons: to provide information essential to proper development of the profession in a changing world; to provide information for the optimum development of interprofessional relations; and to develop information which could be used to improve the educational preparation of optometrists.

THE QUESTIONNAIRE

In order to provide a source of material for the current study on optometric referrals, a questionnaire was designed. It was mailed to a random sampling of 1,350 optometrists who were asked to return one copy each month for 6 consecutive months. Of the 306 who responded by returning the first month's questionnaire, 133 completed the entire series. A total of 1,360 monthly questionnaires were returned.

TABLE 1.—*Geographical distribution of replies to questionnaire*

State	Number of monthly replies	Number of patient visits ¹	Number of referrals	Percentage of referrals to patient visits
California:				
Rural.....	41	6,826	166	2.43
Urban.....	151	26,164	722	2.76
Florida:				
Rural.....	54	8,155	304	3.73
Urban.....	97	21,346	347	1.62
Illinois:				
Rural.....	95	17,901	357	1.99
Urban.....	55	9,758	291	2.98
Massachusetts:				
Rural.....	38	6,137	102	1.66
Urban.....	76	10,404	222	2.13
Michigan:				
Rural.....	64	9,394	179	1.90
Urban.....	88	20,156	320	1.59
Pennsylvania:				
Rural.....	93	11,688	322	2.75
Urban.....	93	16,800	236	1.40
Texas:				
Rural.....	25	3,972	57	1.44
Urban.....	94	14,392	194	1.35
Other States:				
Rural.....	103	16,184	403	2.49
Urban.....	133	36,135	924	2.56
Total of all States:				
Rural.....	513	80,257	1,890	2.35
Urban.....	847	155,055	3,256	2.10
Grand total.....	1,360	235,312	5,146	2.19

¹ The term "patient visit" means visits to the optometrist for any reason. It is estimated that the refracted patient uses $2\frac{1}{4}$ visits in connection with one refraction.

The questionnaire asked for information on the optometrist's age and length of practice, the population of his city, and the number of patient visits for that month. It asked about the number of eye physicians in the locality and the number of miles to the nearest eye physician. The age and sex of each patient referred that month and the number of years the patient had been served were included. Referrals were categorized to ophthalmologists, general practitioners of medicine, dentists, other optometrists, and other health personnel, and their record of formal acknowledgment of the patient's appearance was listed.

DISTRIBUTION OF REFERRALS

Responses to the questionnaire were well distributed geographically with a fair division between urban and rural areas as shown by table 1. There was no essential difference between the data from rural and urban areas. In four States the urban optometrists referred more patients and in four others the rural referrals were greater.

As near as can be determined, there are 18,500 optometrists in active practice in this country at the present time. If these data are projected on the basis of the total number of optometrists in active practice, it can be estimated that in the United States optometrists received 37,363,000 patient visits annually. Of these 818,360 patients are formally referred to others for some type of health service.

Of all formal referrals, 86.55 percent were made to some branch of medicine. As would be expected, the larger share of referrals was made to ophthalmologists; 53.7 percent being made to them and 32.8 percent to general practitioners. Referrals to the general practitioner would be greater if full data on the desirable but elective type of referral were available. According to the study, 3.3 percent of the formal referrals were made to dentists. Of the balance, 5.1 percent were made to other optometrists and 5 percent to other miscellaneous health care personnel.

If this same distribution holds for the entire optometric profession, it would be projected to the following annual total of referrals:

	<i>Patients</i>
Ophthalmology.....	439,460
General practice.....	271,622
Dentistry.....	26,990
Optometrists.....	41,736
Miscellaneous.....	40,918

REFERRALS BY AGE OF OPTOMETRIST

In order to determine if there were any significant difference in referrals among older and younger optometrists, or in the number of years in practice, the data in tables 2 and 3 were compiled. These tables show a higher rate of referrals by older optometrists, though the returns from those over age 65 were too few to be fully significant. The higher percentage of referrals by the older optometrist reflects the higher average age of his patients which keeps pace with his own increased years (4). The incidence of health problems increases with the age of the patient. This pattern holds true when referrals are grouped in accordance with the number of years the optometrist has been in practice. The rate of referrals increases with the number of years, with a significant jump when the optometrist arrives at the 51-to-65 age level or has been in practice from 16 to 30 years. Referrals to his colleagues also increase from less than 1 percent on the under-50 group to 5.5 percent in the over-50 group.

REFERRALS BY SEX

There were 2,543 females and 2,076 males referred by optometrists in this study. This represents 81.6 males to 100 females, and follows closely the study made of optometric practices in California, 1956 (5). It demonstrates that the optometrist sees 80.8 males to 100 females in his regular practice.

TABLE 2.—*Referrals related to age of optometrist*

Age of optometrist	Percentage of total patient visits referred to					
	Ophthalmologist	General practice	Dentist	Other optometrist	Others	All referred
Under 30.....	1.36	1.74	0.04	0.14	0.11	3.40
30 to 40.....	1.18	.86	.09	.01	.13	2.31
41 to 50.....	1.06	.68	.08	.20	.12	2.14
51 to 65.....	2.40	.51	.04	.08	.09	3.16
Over 65.....	2.84	.25	.03	.06	.03	6.42

TABLE 3.—*Referrals related to number of years in practice*

Years in practice	Percentage of total patient visits referred to					
	Ophthalmologist	General practice	Dentist	Other optometrist	Others	All referred
Under 5.....	1.23	1.29	0.08	0.07	0.16	2.83
6 to 15.....	1.12	.83	.10	.06	.10	2.20
16 to 30.....	2.09	.81	.11	.31	.15	3.46
Over 30.....	2.21	.66	.07	.13	.15	3.25

ACKNOWLEDGMENT OF REFERRALS

The best interests of the public are served when there is full and free communication between the optometrist and the professional to whom the patient is referred. The findings of the optometrist contribute to the understanding and remedial care of patients whom he refers. The knowledge communicated (3) to the optometrist adds to the latter's learning and skills. It also helps him to plan the subsequent visual care of the patient who was referred.

Of the 2,772 referrals that were directed to ophthalmologists in this study, 71.3 percent were acknowledged, either in conversion or by written communication. Of the 1,683 referrals to physicians in general practice, 45.5 percent were acknowledged. The difference is significant and may be explained by several factors. The greater area of mutual interest increases the frequency of communications between optometrists and ophthalmologists. The fact that the number of ophthalmologists is smaller than that of general practitioners means more referrals to individual eye physicians by optometrists. This, in turn, builds a greater rapport between the two. Also, by the very nature of their practice, most specialists are most adept at maintaining communications with those who refer to them (6).

FUTURE STUDY

This study of formal referrals, from optometrists to other health professions, points to other avenues for enquiry and study. It would be desirable to make a broader study, covering a more representative group of optometrists, and giving more attention to desirable but elective type of referral. It should include a search for information on better screening methods and procedures for determination by optometrists of any deviation from normal function. A study could be made of communications between optometrists and other professional people. This could point out the relationship of frequency of referrals to their acknowledgement. It might be directed to searching for better techniques for communication between professional people. It would be desirable to know what constitutes a "patient visit" at an optometrist's office, and what relationship exists as to frequency among various kinds of visits.

CONCLUSIONS

1. Optometrists see a large volume of patients, many of whom exhibit signs and register symptoms of disease and malfunction that fall outside the scope of their service. If the present sampling is projected to the 18,500 optometrists in active service, it represents 37,368,000 patient visits per year.

2. Projecting the 2.19 percent referrals to patient visits in this study shows that optometrists refer 818,360 people to others for health services.

3. The greater share (53.7 percent) of optometric referrals is made to ophthalmologists according to this study. This represents 439,460 patients.
4. The next larger group of referrals (32.8 percent) is sent to general medical practitioners. This represents about 271,622 of this type of referral.
5. A smaller group of referrals (3.3 percent) was made to dentists.
6. Optometry represents a considerable health resource. Its role in the maintenance of health could be developed more effectively.

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"WHERE THERE IS NO VISION . . ."

The American Red Cross exists for the purpose of preventing or lightening mankind's sufferings from war, natural disaster, and disease. To achieve its objectives requires the best of a great many attributes, one of the most important of which is vision.

Good vision is necessary in the countless tasks which are performed by volunteers such as Gray Ladies, Motor Service, and Nurses' Aides, all of which have become synonymous with Red Cross, as well as the highly skilled and technical services performed by the staff in the blood program, nursing services, disaster services, and numerous others.

Good vision is necessary, also, to help Red Cross see its ever-increasing responsibilities to a needy world; to help us see outward, not inward; to give us an enlarged vision which sees beyond barriers and difficulties. Indeed, this kind of vision is necessary to help our Nation behold its place in the family of nations that we, as a people, may help others live more abundantly.

We read in the Book of Proverbs: "Where there is no vision, the people perish." Surely this was never more true than it is today.

GEN. ALFRED M. GRUENTHER, PRESIDENT, THE AMERICAN RED CROSS

After 38 years as an officer in the U.S. Army, Gen. Alfred M. Gruenther retired from active duty in 1957 to become president of the American Red Cross, taking over command of some 3,700 chapters of volunteer workers and services.

A 4-star general, he last served as Supreme Allied Commander of Europe, a post he held since 1953. He previously served as Chief of Staff of the 3d Army under General Krueger in London. He later was named Chief of Staff of Gen. Mark Clark's 5th Army in North Africa and Italy.

General Gruenther was appointed Director of the Supreme Headquarters of the Allied Powers in Europe in 1951, and later he was named Supreme Allied Commander in Europe. He is the holder of many special citations and medals for valor and service, including a vast number of decorations by a number of foreign countries.

A GREAT WEALTH OF PROFESSIONAL EYE CARE

(By Arthur S. Flemming, Secretary of Health, Education, and Welfare)

As with many of our greatest blessings, we are inclined to take vision for granted. We tend to forget that our sight must be protected, that much blindness is preventable, that many visual problems can be reduced if action is taken in time.

We in America are fortunate in having a wealth of professional eye care available to us. Great strides have been made in recent years in the reduction of blindness due to infectious diseases and injuries.

With further scientific advances in visual research and the fullest application of knowledge already at hand, we can look forward to still greater progress in conserving our Nation's eyesight.

AMERICAN COMMERCE, INDUSTRY, AND GOOD VISION

(By Frederick H. Mueller, Secretary of Commerce)

To those among us who have been the beneficiaries of corrected vision through properly prescribed eyeglasses, there may seem little need for emphasizing the importance of keen vision in our daily pursuits. And yet, we need only to break, lose, or leave our glasses at home to find our productivity—and disposition—greatly impaired. We are different persons, with newly imposed limitations of mobility and accomplishment until the eyeglasses are again at hand and keen vision restored.

The value of corrected vision is not always so obvious to those whose eyesight has gradually become impaired or who have only minor visual difficulties. Too often such persons are not aware of their need for the benefits to be derived from the professional skills of the optometrist. Nor have they any realization of the limitations which diminishing vision is progressively imposing upon their efficiency and productive capacity.

Of course, I cannot speak as a member of the optometric profession. But as a former business executive and currently the Secretary of Commerce, the subject of better vision has long been a matter of concern to me. Among the duties of the Commerce Department are the promotion and development of our free enterprise system. That system has given Americans the highest standard of living in the world. Its continued progress depends in part on how efficiently its operations are conducted. Better eyesight contributes considerably to such efficiency.

Therefore, I reflect the appreciation of both the Commerce Department and the business community for the half century of splendid effort by the *Optometric Weekly* in alerting its readers to the latest techniques of vision care. Surely, the efficiency of our productive system has been raised by attention to such care.

We all recognize the importance of keen vision to the American worker who, today more than ever before, is directing complicated machinery or devices requiring precision. Nearly every industrial job demands some degree of visual proficiency, and many jobs require an exceptionally high degree of visual skill.

I am informed that research by optometric and medical experts in many highly specialized industries has proved conclusively that there is a close correlation between good visual performance and successful working performance on specific jobs. Indeed, a worker with an undetected visual defect can be not only a liability to production, but also a liability to himself and his coworkers. Statistical evidence has come to my attention which reveals that 2 out of 3 adults have inefficient vision which can handicap their work and personal job-advancement opportunities.

It is therefore understandable why thousands of individual plants, engaged in producing the products and material that have made America the greatest production line in the world, have instituted sound vision-testing programs for all employees, and some form of vision test has become a standard part of the physical examination of most workers in many more thousands of small and large plants.

Reports gathered by Department specialists indicate that the optometric profession has been very active in the search for ways and means of giving the employees of American industry the best possible and most efficient vision for their individual occupations at low cost to both employees and employers. Through their efforts, so-called occupation vision programs are today a standard and valued part of many thousands of plants engaged in almost every conceivable type of productive work. As a result of such programs, older workers are now working to later years and to full retirement with the confidence that their vision is adequate for their job performance. Millions of

dollars have been saved annually by American industry through increased efficiency, eye protection, and qualitative as well as quantitative production.

American business executives have heavy reading schedules. A survey conducted by the Harvard Business Review, in which a cross section of major company executives were polled as to their reading habits, showed that the average top executive regularly reads, for business purposes, more than eight different magazines, newspapers, business newsletters, and trade journals. The Review also learned that the executive reads more as he climbs the managerial ladder.

The necessity for continually learning through the printed word places a heavy burden on the executive's eyesight, especially if he needs visual aids. Therefore, periodic examinations are routine among proficient businessmen, and thousands of business executives have also undertaken reading improvement programs arranged for by their firms.

In the Department of Commerce we have a full-time specialist and a well-equipped laboratory where reading improvement programs are offered to our employees. These help break inefficient reading habits and develop efficient habits to make reading more rapid, profitable, and enjoyable.

As in other aspects of health, there is no substitute for qualified professional vision care. Through its aid, men, women, and children, are getting more out of life and giving more to others, in both play and work. American commerce and industry is indebted to the professional vision specialists for their contributions to improving the working conditions, health, and productive capabilities of America's vast working force.

VISION, SPORTS AND THE 1960 OLYMPICS

(By Kenneth L. "Tug" Wilson, Commissioner, Intercollegiate Conference President, U.S. Olympic Committee)

I very much appreciate the opportunity to present my sincere congratulations to the Optometric Weekly on its 50th anniversary. This magazine has been of great benefit to a fine profession, and it is my hope that it will continue with success for many years to come.

In the field of competitive athletics, there is nothing that is more important than good vision. Looking back over the long span of 50 years, I marvel to think of the great advances and aids that have been given by the optometrists of our country toward improving and helping to correct the vision of literally thousands of athletes. Many of our great football and basketball players have been aided immeasurably by glasses and contact lenses. I remember vividly the first athlete I saw in baseball who wore glasses, and upon inquiry I found out that it would have been impossible for him to compete without them.

Good vision gives a youngster confidence. Without it he is lost, and is apt to be relegated to the sidelines. What a wonderful thing it is that this distinguished profession has made it possible for these handicapped youngsters to compete on equal footing with any group.

I have just returned from Rome after being invited by the Italian Olympic Committee to come over as their guest and view their preparations and installations for the XVII Olympic games. Not too far from the ancient ruins of the Coliseum, where gladiators dueled to the death, is erected one of the most magnificent stadiums I have seen. With the combined totals of seats which are available and with standing room, it will accommodate over 90,000 people. An elaborate press box with facilities for over a thousand visiting sportswriters has been constructed, and the results of the games will be sent all over the world in many different languages. One of the unusual features of this stadium is a deep moat which surrounds the field. I inquired as to what it was for and was somewhat surprised to learn that it was the protection of the football officials and players from the spectators, who apparently get quite worked up when a game is in progress.

The Sports Palace is the last word in athletic facilities. This gigantic concrete edifice is without a single pillar or steel support to bar the vision of anyone who enters. It is circular, with a beautiful ceiling of lateral concrete construction, where they are able to place different color lights giving it a wonder-

ful appearance. This will seat around 17,000 and is where they will hold basketball games, gymnastics, and boxing, among others.

The equestrian events, which usually are held miles from the host city, in Rome, will be held virtually in its center. They have a tremendous park there and have constructed the jumps and obstacles right in this park where hundreds of thousands of people will be able to see them.

The Olympic Village, where there are to be housed some 7,000 athletes from 84 countries (the number which have entered the games to date), is a model of efficiency. Here they have erected beautiful permanent buildings which are commodious, and there are 10 different dining rooms in among the buildings. The nations will be grouped so that those who are accustomed to certain types of food can have exactly what they wish and, if they so desire, they can bring their own chefs. Here the athletes will have their own post office, their own world bank where they can change their money into Italian lire, shops where they can purchase almost anything, and a large hall where they can be entertained with movies, dancing, and hold get-togethers of many kinds.

The question may come to your mind how the nation of Italy and the city of Rome can afford such expensive and elaborate preparations for the XVII Olympiad. In contrast to the methods of raising money for Olympic activities that we pursue in the United States, where our contributions come from thousands of sport-loving fans who want to support this worthy cause, and from gate receipts from the tryouts, in Italy the National Olympic Committee receives a percentage from the football lottery, which is a legitimate enterprise in that country. This amounts to several million dollars a year, and from these receipts they are able to build these magnificent structures and outdo anything that has ever been done in promoting a set of Olympic games. This is a very easy and feasible way; but the American Olympic Committee has strongly felt that the Olympic effort should be promoted by friends and sport lovers who are willing to send in their contributions to us, rather than have our team subsidized by a bill being put through Congress. We have appreciated the magnificent support that has been given us so that the task of raising roughly \$1,500,000 for the winter games in Squaw Valley and the games in Rome is not an insurmountable one.

The old adage that "all roads lead to Rome" will certainly be true this summer when the fine young representatives of 84 countries will go to that magnificent city to live together, practice together and enter contest where regardless of size of nation, race, creed, or color, all will have equal opportunity in competition. It is my honest and sincere feeling that such international contests where the best representatives from countries all over the world have an opportunity to get to know each other, to make friends, and learn to respect each other will do more to perpetuate international peace than any other single plan that could possibly be conceived.

Italy is to be congratulated on the most magnificent facilities that any Olympiad has ever seen, and with the tremendous worldwide interest in athletics the XVII Olympic games cannot fail to be one of the greatest athletic spectacles of all time.

THE LENS AND I

(By Ronald Reagan, Pacific Palisades, Calif.)

For most of my life I have experienced the inconveniences of imperfect vision. Like so many people with visual problems, I always had mixed reactions to wearing corrective glasses. As an active participant in several varsity sports in high school and in college, I was always somewhat handicapped with the impractical aspects that glasses presented; yet I was constantly grateful for the perfect vision that was only possible through the corrective glasses I had to wear.

When I began my motion picture career, I found this same problem was very much with me. Obviously, I would be very much out of character as the adventurous Western hero—with a pair of glasses perched neatly on my nose beneath a 10-gallon hat. But on the other hand, taking off across country on a fast horse because the script said "they went that-away," became a very hazardous undertaking when even the ground was a blur to my nearsighted eyes.

Then came the "miracle" that answered the problem of the lens and I—contact lenses. And I mean the original contact lenses. My wearing time then was only a couple of hours; but it was enough to allow for careful rationing of my

wearing periods to see me through action scenes and even personal appearances. I might add that previously during my personal appearances, the audience could see me—but I had never seen the audience.

Now the true miracle of contact lenses is complete for me. The lens and I are the best of friends. I wear my lenses constantly (and comfortably) from wake-up time to lights out. Even my closest friends have forgotten that I ever wore glasses—and what is even more important, it seems that I have forgotten too.

If I have anything to say, it is to all parents everywhere: As soon as your child is old enough to have his eyes examined, have it done; if he needs to wear glasses, perhaps he can also wear contact lenses and enjoy the freedom these tiny and comfortable aids to good vision have given me.

GOOD VISION IS VITAL IN BASEBALL

(By Bill Veeck, Chicago White Sox, American League Champions)

It would be difficult to overestimate the importance of good vision in the game of baseball. Without good vision, one just wouldn't be able to meet the rigid standards that are necessary to maintain in order to keep up with the keen competition that exists in baseball today.

While good eyesight is important in other athletic activities—such as football, basketball and track and field—it is even more essential in baseball. This is due to two major factors; namely, the size of the ball and its tremendous speed in flight, whether it be the pitcher's delivery to homeplate or the ball coming off the bat of the hitter.

There have been many examples of outstanding stars in football and basketball who have succeeded although they were not blessed with good vision. Such is not the case in baseball.

Baseball officials, naturally, are very much aware of the tremendous importance of good vision among their athletes. As a result, clubs periodically require that their players undergo eye tests in order to make sure that their vision is just as good as possible. If any defects are discovered, corrective measures are employed, if possible. In some cases, when necessary, glasses are prescribed in order to aid the player as much as possible.

Batting and fielding are two of the vital elements in baseball. Good vision is most essential to successful application of each of these skills.

Timing is all-important to the good hitter. Good eyesight aids in proper timing and thus assists the hitter to become more proficient with the bat. When the pitcher delivers the ball toward homeplate, it may approach the batter at great speed; it may curve in any of several directions; or the speed may vary with different pitches. It is very easy to understand why good vision is so essential to the batter when he is faced with the task of meeting such pitches squarely.

The defensive phase of baseball is very important also. A player must have good eyesight to "catch the ball off the bat" and thus "get the jump" on the ball in his efforts to field it. This "getting the jump on the ball" is the prime factor in the success of our great defensive infielders and outfielders.

Take centerfielder Jim Landis of the White Sox, for instance. When the hitter connects with a long drive to the outfield, he is off with the "crack of the bat" to make the catch. Keen eyesight, coupled with his great speed and natural instincts make him one of the great outfielders in baseball today.

We might consider the importance of good vision in another way, too. It certainly takes "good vision" on the part of the men who operate the baseball clubs to maintain the game on a high plane. It also takes "good vision" to build a ball club into a pennant contender.

That, of course, is considering vision in another light. But it is important in baseball, as in all other activities.

I can't help but think how important a factor good vision was in the 1959 World Series, particularly in the games our Chicago White Sox played in the Los Angeles Coliseum. With a tremendous mass of white shirts forming a most difficult background for both hitters and fielders, the two teams played very well considering this visual problem. Good vision was needed, as never before, in the three World Series games played in Los Angeles.

Yes, good vision is indeed vital to a baseball player, a baseball club, and to the wonderful fans who watch America's favorite pastime.

RX FOR PROFESSIONAL FOOTBALL: GOOD VISION

(By Dr. Bill McColl, Chicago Bears)

The importance of good vision is dramatically demonstrated throughout the entire field of competitive athletics. In fact, the formula for success in almost every competitive sport is: "Keep your eye on the ball." You'll find this prescription applies as much to the devoted father and his 6-year old son playing a game of "pitch and catch" as it does to a golf professional instructing an octogenarian in swinging a golf club. The fundamental principle of sharp eyesight—keeping an eye on the ball—holds true in so many sports because a ball—or some similar object—is the focal point.

It requires concentration to keep an eye on the ball—and the quality and degree of concentration, combined with natural physical ability, experience and training, determines the degree of success an athlete will attain. Paramount to concentration, however, is accurate perception—clear, sharp vision—something that is taken for granted by everyone except those who do not possess it.

Not every athlete is blessed with the 20/20 or 20/10 visual acuity possessed by such great sports personalities as Ted Williams of the Boston Red Sox. These days, however, athletes with visual handicaps, such as I have, even as low as 20/200 uncorrected, may enjoy the advantages of clear, normal vision through corrective lenses—and especially contact lenses.

In the vigorous and rigorous sport of professional football, no player is more dependent on good, sharp vision than a pass receiver—usually the pass-receiving end. This particular athlete's value to his team depends mostly on his ability to catch the forward passes—usually under the most difficult of circumstances. This is a feat that requires the utmost in good vision, perception, and concentration. In no other phase of professional football is it more important to "keep your eye on the ball." It might be interesting to note that the top pass-receiving end in professional football during the 1958 season was Ray Berry of the world champion Baltimore Colts—and Berry wears contact lenses on the playing field and off the field.

While the pass-receiving end requires the ultimate in good vision, it is also a major requirement of the player (usually the quarterback) throwing the forward pass. One of the commonly popular phrases used by sports writers reporting the passing abilities of a good quarterback like Johnny Unitas of the Baltimore Colts is that he can "thread a needle" with a forward pass. The use of this phraseology implies extraordinary eyesight that allows a passer to put the ball accurately in the hands of a receiver far down the field. And that takes sharp visual perception, plus skill in timing the forward speed of the ball with the receiver's running speed.

Again, you often read in the sports pages another expression pertaining to visual skills—"peripheral vision"—a phrase usually applied to a good broken field runner. It was the great All-American of two decades ago, Tom Harmon, of Michigan, who used his peripheral vision to great advantage on the football gridiron. There were those who claimed Harmon had "eyes in the back of his head," but in reality Harmon had the exceptional peripheral vision that allowed him to see a tackler coming up from the side while his eyes looked straight ahead. Thus, Harmon (and many other great runners) proved time and again that clear, sharp vision is the greatest asset to success in football.

My own decision to wear contact lenses was inspired by my inability to see the not-too-distant scoreboard during night exhibition games. To me this was a very serious deficiency because all of the Bear exhibition games were staged at night. While it was not always necessary to wear my contact lenses during the day games, I soon found that I usually had a better day when I wore my contact lenses during daytime contests. That was about 5 years ago—and I have been wearing them ever since.

Today's technological advancements in the design and development of contact lenses make it possible for me to wear contacts all through the day and evening, allowing me to see more efficiently and to perform better. When I'm not playing ball, I am busy as a doctor, and it is during surgery that I find contact lenses demonstrate most dramatically the importance of good vision.

WHAT YOU SHOULD KNOW ABOUT CONTACT LENSES

How good are contact lenses—and for what purposes are they best? Who can wear them? How long can they be worn? Can children wear them comfortably?

If you are one of the estimated 4 million people wearing these aspirin tablets size lenses, you know the answers already. Almost anyone with a difficult seeing problem can wear them, and wear them nearly all day and night. People—including very small children—who are nearsighted can find clear vision and comfort in contact lenses. Older persons with very low vision will find contacts can give them workable sight. Astigmatism, a common vision distortion, can be easily corrected. Cataract patients are finding that vision can be restored by contact lenses.

While most people want contacts for appearance or vanity, many wear them for their functional value. Contact lenses don't steam up or collect frost on cold mornings—even in extremely low temperatures; they offer complete freedom of sight, with no frame edges and offer a 15 percent wider field of vision; they don't streak in the rain; they are very fine for most sports activities and outdoors events; they offer actors and others who appear in public the freedom of movement with perfect vision.

The American Optometric Association warns, however, that a professional examination and professional fitting of these tiny lenses is absolutely essential to patient satisfaction. After all, if you pay from \$150 to \$300 for your contact lens service, you should get only the best. The AOA notes that there are all kinds of contact lens fitters, from poorly trained to ultraprofessional. Most are ethical, but some are not. You are advised to consult your family optometrist first. You may not be able to wear them at all. There is a rather trying period of adapting to contacts, and you must be very patient—sometimes requiring two or more fittings and adjustments.

Both optometrists and ophthalmologists warn against contact lens fitters who advertise their business—because it is a business with such people. The code of ethics does not allow reputable optometrists and ophthalmologists to advertise. Some advertisers will promise perfect fittings for as low as \$50; beware of any low price offerings because there is little chance that you will get the service necessary for complete satisfaction.

MORE THAN "TEARES, SMOKE, WYNDE . . ."

(By Mark W. Peters, vice president, Nixon Nitration Works)

"Foure things hurt the sight of al menne, that is, Teares, smoke, wynde, and the worst of al, to see his friend unluckie, and his enimies happy."

So goes a quotation four centuries old.

I haven't any statistics to prove it, but in this sixth decade of our century, when we add our hours over a desk, or whatever our tools of labor, to the hours we sit behind a steering wheel to the hours we relax—in front of a television screen, I feel sure that never before has the sight of "al menne" been more likely to be hurt.

Today industry alone creates eye hazards far greater than tears, smoke, and wind. As we all know, in manufacturing jobs throughout the country safety gear is supplied and safety programs are operating, bolstered constantly by several wonderful nonprofit organizations which remind us in many vivid ways to safeguard our precious sight.

Yet, in spite of research, education, and a variety of scientific skills all aiding and preserving vision from childhood onward, there still remains industry with its estimated 300,000 eye accidents occurring every 12 months. This would certainly indicate that effective eye protection is not in use as widely as it should be; which in turn would indicate that management is not maintaining effective control of the situation.

Whoever employs men knows how vital is each man's vision to the vitality of a business. Because our plant is comparatively small, we haven't found it necessary to conduct a formal or "must" safety regime. Person-to-person appeals and reminders, or what we might call a missionary approach, have

helped to keep our safety record good. We do require eye examinations for every potential employee. He doesn't begin his job without corrective eyewear. Wherever possible we adapt a man's visual capacity to his job. Where it isn't possible, he isn't hired. When you consider the tragic accident or increasing infirmity which can result from overtaxed vision, this isn't as heartless as it sounds. On a less personal basis, a company's reputation is in jeopardy, its economy affected. Eventually insurance premiums have to get higher. And what company can afford even one inefficient worker?

To keep our efficiency as high as possible, we know the value of regular eye examinations for every person. We have had our lighting facilities checked and improved by experts. We supply safety goggles and request that they be worn. But this isn't enough. It takes constant hammering and vigilance to keep men careful.

Individually, I wonder how many of us are consistently impressed by the importance of eye safety and, more simple, by just good visual health. I guess it's all too lamentably human that we have to be jolted by the preventable accident, by the loss or near loss of sight before we are able to do more than take for granted our precious gift, our power to see.

It seems to me that we who in any way contribute to the optical industry would be natural crusaders for healthy vision. As with all improvements, we'd do well to begin with ourselves, in our homes; then examine again and again our offices and shops. Let's make sure and keep making sure that the best possible safeguards are installed and always in use.

Who of us wishes to see even our enemies unhappily involved in an eye accident which could have been avoided? Why, if we can help it, suffer from that hurt to our sight which is "woorst of al," seeing our friends unlucky, unlucky with their only pair of eyes.

THE POST'S MOST PRECIOUS ASSET—YOUR EYES

(By Peter E. Schruth, vice president, advertising director, the Saturday Evening Post)

The Saturday Evening Post's most precious asset is one it does not own or control. But the care and well-being of that asset are never long out of our thoughts; for without its good health, my company and its products would cease to exist. That asset is the eyesight of the American people. It is our chief concern, and we salute the optometrists of America for their invaluable skill in preserving and protecting it.

The history of modern civilization is the history of the demands made on human vision. Consider the fact that a brief 200 years ago the number of people who could read was infinitesimal. In 1760 those who earned their livelihood working under artificial light, in offices and factories, were so few as to be almost nonexistent. Practically everybody worked outdoors as farmers, fishermen, or in the building trades. True, women in their spinning and sewing did fine precision work; and so did a few artisans like silversmiths. But most of the work we engaged in and the games we played made few demands on that delicate, but sturdy organ, the eye.

But with the 19th century, the world moved indoors. The industrial complex was born, with its offices and factories. Men huddled over the lathe, and both men and women over the desk. Literacy rose, and mass communications developed with newspapers and magazines. National advertising made possible mass distribution and mass production. These in turn brought to America the highest standard of living in the world, and more leisure time. But in their leisure, people made not fewer, but greater demands on their eyesight; for they had discovered the joys of reading, one of the most sublime discoveries in the history of mankind.

My company has had the privilege of playing a leading role in this discovery. For over 75 years now, the Curtis Publishing Co.'s magazines have been enjoyed by untold millions of people, week after week and month after month. Through our pages, they have explored every corner of the globe and much of space; they have studied every significant political and economic development of their day; they have received instruction in everything from the art of cutting out a paper doll to that of baking a cake and making a dazzling

evening gown. They have read the master fiction writers of the century, and have doubled up over countless rib-tickling cartoons. And they have smiled over the warm, human traits which the great artists have portrayed on the covers and in story illustrations.

Most of the time, of course, they read our magazines under the ideal conditions of modern lighting, provided by the research and manufacturing techniques of our great electric companies, which have done so much toward preserving eyesight. But, frankly, we sometimes worry about where they read them, as do, I know, their optometrists.

They have read them by the glaring spot of the kerosene lamps of the 1880's and by the feeble light bulbs at the turn of the century. They have read them by flickering candlelight in a World War I dugout, and by a parachute light over a Pacific Island battlefield in World War II.

Today, they read them in the midday sun of a white Florida beach, and in the dusk of a city park. They read them lying, sitting, and standing. They read them in bouncing cars and on swaying commuter trains. Young and old, teenagers and nonagenarians alike, they read them in every possible position and under every conceivable condition of light and motion.

And all this time, they are tampering with my company's most valuable asset. Is it any wonder we worry?

Of course, there's not much we can do about it—how, where and under what conditions they read them. But we can, and have, done a great deal about the legibility of what they do read.

Our company is the largest integrated publishing operation in the world. We produce magazines all the way from the tree which supplies the woodpulp for paper to the finished product in the hands of the reader. We control the manufacture of the paper, the typefaces used in printing, the layout of the pages, the ink used, and the printing itself. In every step of the process we have continuous research programs underway to produce an easier-to-read magazine. For readability is a sine qua non of our business. If our magazines are not legible, they will not be read; and the easier they are to read, the more they will be read.

Because our aim is readability, we have progressed from the fancy typefaces of the Gay Nineties era to the cleaner, sharper, more legible faces of today. The same is true of layout. Where before we had pages cluttered with rococo scrollwork, today the aim is simplicity. In paper we have made great strides in providing better surfaces, so that the type will produce a sharper impression instead of one that's diffused and blurred. Improved inks also contribute to better printing, as do the modern printing techniques in which we have pioneered.

The result is a more attractive magazine because of its legibility and simplicity, and cleaner, uncluttered pages. It makes our business prosper; and it is good, I know, for the eyesight of the American people.

No firm in the country shares with the optometric profession a greater interest in good vision than does ours, for without it we are lost; but with it we prosper. It is our most valuable asset, and one that we will do everything within our power to preserve. We are definitely with the optometrists of America in that aim.

A GOOD SCOUT TAKES GOOD CARE OF HIS EYES

(By Rebel L. Robertson, Public Relations Director, National Council, Boy Scouts of America)

The Boy Scouts of America promotes through organization and cooperation with other agencies, the ability of boys to do things for themselves and others; to train them in scoutcraft; and teach them patriotism, courage, self-reliance, and kindred virtues, using the methods which are commonly associated with scouting.

These methods, the outdoor and indoor experiences which help a boy develop himself, require good vision, not only physically for the sake of partaking in lively activities, but also mentally in order that he might collect visually the knowledge necessary to the constant improvement of his mind.

Tracking, trailing, astronomy, craftwork, lifesaving, first aid, and other tasks which Scouts must perform to qualify for ranks in scouting are demanders of high quality, expertly cared for vision. Events which have been associated in the main with scouting, such as signaling, beeline hikes, identification of wild

animals and birds, and others also immediately bring to mind the importance of good vision.

At the same time, a lad of Scout age should be thinking about his ever-increasing span of influence. He should see that as he grows, he must also grow in his vision of what his community, State, and country mean. He must be able to see and understand what it takes and why it is necessary to be a worthwhile citizen.

The visual welfare of the youth of this Nation is of vital interest to the Boy Scouts of America. Throughout our literature and teachings, we strive to keep our members aware of the importance of this great cause.

INDUSTRY NEEDS A GOOD VISION PROGRAM

(By William H. Seymour, senior vice president, Liberty Mutual Insurance Co.)

Vision programs in industry originally set a quite limited goal—the prevention of accidents. The premise was that if a worker could see better, he could avoid hazards. This limited goal quickly expanded, however, as beneficial side effects were noted by industry. Not only did corrected vision prevent accidents, it also increased worker comfort, eased the tension of eye strain, lessened fatigue, and increased worker accuracy and total output.

This evolution from a single, restricted goal into a more comprehensive program has typified our own efforts to bring occupational medicine into the service of industry. The good side effects have often amazed us.

The economic loss to industry, not to mention the human anguish, resulting from eye injuries, has been often noted. It has been estimated that daily some 1,500 industrial workers suffer eye injuries, ranging from partial impairment up to complete loss of sight. Such figures stagger the imagination. But this is only a small segment of the whole problem. Injury to the eyes is one thing, and a tragic one; but contemplate for a moment how many other injuries and even fatalities grow out of uncorrected vision defects. One might safely contend that vision insufficiency enters as a factor into more accidents, and more importantly into more accidents than any other single type of defect. Hence, important as it may be to avoid accidental eye injuries, it is probably even more important to prevent the far greater number of accidents attributable in whole or in part to faulty vision.

My company, Liberty Mutual, looks upon visual disability as it does upon other types of physical disability. It should not be a deterrent to employment, if the conditions are known and the individual seeks correction and is properly placed. We are far more interested in an individual's abilities than in his disabilities. Accurate appraisal of an individual's disabilities is a preliminary step made necessary only to arrive at corrective or compensatory measures which then lead to a realistic final determination of his positive abilities.

For years, in fact ever since our company was organized 47 years ago, we have pioneered in industrial safety engineering. Some time ago the limitations of this unilateral approach became evident. Despite the considerable progress in accident reduction attained through machine guarding, improved housekeeping, safety education and better work methods, it was all too obvious that even if these were brought to near perfection much of the problem of accident causation would remain untouched. Emphasis upon environmental factors was clearly not sufficient so long as the human factor, known to be present in every accident, was largely ignored. We had done a good job in the control of environmental factors and had made tentative advances, of perhaps debatable value, into safety educational philosophy; but the individual worker as a unique personality remained a virgin fortress. Everyone felt that the individual worker, with his inner tensions, emotional conflicts, indefinable attitudes, physical frailties, and mental imitations, played a preponderant role in accident-producing situations, but to most of us the human psyche was a book with seven seals.

It became apparent, therefore, that the next decisive breakthrough by the accident prevention profession would derive from an exploration of the personal causes of accidents. This led us directly into industrial medicine in all its phases. From the beginning, we regarded our industrial medical staff as an integral part of our loss prevention department, but a part dedicated to a comprehensive investigation of the worker as a human being, as a bundle of human factors.

This study of the personal factors in accident causation has sharpened our thinking, has brought out some surprising facts, and has explained some of the opinions we held formerly but could not justify. We realize now the overriding importance of worker attitude and motivation, how irritations which are seemingly minor can grow into major problems, and how sensory deficiencies (especially in vision) may appear unimportant or even go unnoticed but may lie at the root of accidents, headaches, emotional upsets, lowered efficiency, and unnecessary fatigue and depression. Since this discussion concerns vision, I shall limit my remaining remarks to this aspect of the problem.

Vision is almost universally regarded as the most valuable of our senses. It gives us more information about the world we live in than any other sense. It follows from this that we should take every possible measure to conserve our vision and to correct its deficiencies.

Industry has rather generally realized the value of adequate illumination, prevention of glare, and the effective use of contrast and colors. It still must be educated beyond these environmental improvements and induced to take greater interest in the vision of the individual worker. This educational project has some obstacles which should be carefully noted.

That vision defects contribute heavily to accidents is becoming widely recognized, not only in factories and commercial establishments, but also among commercial drivers. The latter, in particular, are becoming more aware of the importance not only of visual acuity but also of depth perception, field of vision, and color discrimination. However, there is a lingering belief on the part of many managements that the individual worker is usually aware of his vision inadequacies and has had them corrected so far as possible. Unfortunately, this belief is often ill-founded.

The onset of impaired vision, whether through disease or the aging process, is frequently so gradual and subtle that the affected person may be totally unaware of his loss until some accidental circumstances brings it forcibly to his attention. Small day-to-day changes are difficult to perceive. Every parent experiences this in his child. When the child is seen daily, no great change is noticed; but when he returns from an absence of only a week, the change is often rather jolting.

Even when this belief, or prejudice, of industry has been dispelled, I believe you will not find it easy to sell management on a comprehensive eye-examination program. On this subject I can speak with some degree of confidence founded upon many years of selling management on accident prevention measures. If I may be permitted to close this discussion with a word of advice and still avoid the allegation of presumption, I would submit the following:

I believe vision programs must be sold to industry on a selective basis. This is the way we sell our accident control programs. We select certain hazardous conditions; bring them to the attention of management; show their probable costly consequences; and explain clearly what can be done about them. If management buys our bit of accident prevention and sees its good results, we can sell a bigger bit next time. Eventually, we can sell a needed comprehensive program.

The same can be done with vision programs. Select certain operations where vision plays a prominent part, perhaps an operation involving only a few workers. Prove your point with this small sample and management will take the next step. Eventually, management may ask for the full program of vision conservation.

THE INDUSTRIOUS EYE IN INDUSTRY

Maybe your company doesn't have a vision program. If so, there's nothing to stop you doing the needed job for yourself. Here's how, in three steps:

1. Find out whether your eyes are doing a good or a poor job. If your production record is slipping, if you are having accidents, that may be the tipoff. If your eyes hurt, you feel slack, your vision is foggy, you make frequent trips to the dispensary for headache or upset stomach, that's a pretty sure sign that your eyes are laboring worse than a burnt-out bearing.

2. Analyze what the seeing needs of your job are. Must you be able to see clearly at 20 feet, or 15 inches, or both? How much work area must your gaze cover; a square inch or a square yard? Moving objects or still? Bright or dark?

3. Take your job analysis to a competent eyesight specialist, ask him to make a thorough examination, and tell him exactly what your work requirements are.

In the vast majority of cases he can give you, through carefully prescribed spectacles, exactly what your eyes need and lack; spectacles with one, two, or three lens powers for varying distances, if that's what is needed.

Industrial concerns that have installed vision programs did it because it pays. Why else? Production records have jumped 15 to 20 percent, spoilage and breakage have dropped off, labor turnover has diminished, absence for sickness has declined. Hourly earnings of employees have jumped sensationally in some cases.

If it's good for the company it's good for you. Better attend to it before—well, before you wish you had. And while you are at it, get smart, up-to-date glasses that you will be proud to wear.

RAMBLER MANUFACTURER EXPLAINS WHY SAFETY ENGINEERING IS GOOD MANAGEMENT

Elmer W. Bernitt, Vice President, Automotive Operations, American Motors Corp.

Eye protection is the key to safety engineering and production in America's automobile industry. Vision care is closely related to individual employee skills.

Eye injuries stand high among on-the-job accidents that cost American industry millions of dollars each year.

The loss of man-hours due to industrial vision accidents is a serious drain on our national production capacity.

More and more, safety engineering is assuming a preeminent role in management function. Industry has a big stake in keeping trained workers on the job. The loss of a single employee from a key operation can result in the slowdown of an entire production process. This is of special consideration in the tightly geared operations of an automobile plant where good management practice demands every precaution for the safety and welfare of employees.

The complex nature of automobile production places unusual emphasis on plant safety engineering. Few industries can match the wide variety of job categories in a highly integrated automotive plant, such as American Motors' manufacturing plant at Kenosha, Wis., where more automobiles are produced under one roof than any plant in the world.

At Kenosha, the large concentration of manufacturing and assembly operations calls for unusual rigid enforcement of safety rules. Here, more than 13,000 persons are engaged in building Rambler cars. Demand for the compact Rambler has resulted in more than doubling production in the past year with corresponding increases in the work force. From June 1958 to June 1959, more than 6,000 hourly workers were added at Kenosha, bringing the combined total employment in Milwaukee and Kenosha plants to more than 21,000.

The heavily augmented work forces placed new demands on plant safety departments. To insure safe work environments, plant safety regulations were reexamined and strengthened. Work areas were reevaluated for hazardous or potentially dangerous conditions and safety education for employees stepped up.

Safety programs receive the close attention of top plant management. At Kenosha, a management safety and security committee meets monthly to formulate policies and check performance. Headed by the works manager, the committee includes the director of personnel, the plant safety director, factory superintendents, engineers, and plant protection officials.

Eye protection is particularly stressed in the safety programs. All possible steps are taken to safeguard the vision of employees against accidents. Under our liberal compensation laws, most workers are protected against loss of income due to on-the-job injuries. However, no legislative decree can accurately measure the cost in human suffering resulting from loss or serious impairment of vision.

EYE SAFETY INDOCTRINATION

Indoctrination of employees on eye safety begins the moment they join American Motors. The wearing of safety glasses in restricted areas is described in detail in the company's "On the Job" booklet received by each new employee. Mandatory areas and types of glasses to be worn are emphasized again in training classes attended by all new employees before beginning work assignments.

Workers are instructed that eye protection must be worn in operations involving the handling of acids or caustics, in all types of grinding operations,

chipping, welding, cutting, breaking of concrete or masonry and when working before ovens or furnaces. They learn that a carelessly used compressed air hose can send needle-sharp metal particles hurtling through the air with bullet velocity. They are advised, too, that failure to wear safety glasses in prescribed areas can result in disciplinary action—up to 60 days suspension for chronic offenders. This measure is evoked only as a final resort and in the employee's own interest.

Signs warning that safety glasses must be worn are prominently posted in all restricted areas and on the entrances of buildings housing certain operations. Workers and visitors passing through these areas also must don eye protection.

Types of safety glasses to be worn are determined by careful job analysis and evaluation of hazards involved. Plano safety glasses, clear lenses with high impact resistance, are issued for frontal protection against possible large flying particles. Where dust or small flying particles are potential hazards, safety glasses are equipped with side screens having screen openings no larger than one twenty-fifth inch, as specified by the Wisconsin State Administrative Code. "Tuff-Cote" lenses, of special hardness, are used where extra impact protection is indicated. Protection against radiation and harmful light rays is provided by properly tinted lenses and sidescreens.

Wearers of prescription glasses are equipped with monogoggles in restricted areas. These lightweight plastic goggles with high-impact lenses fit snugly over the regular glasses for added protection.

Extensive welding operations are employed in Rambler production. This is due to the single unit construction methods pioneered by American Motors and recently adopted by other manufacturers. In this type of construction, body and frame are welded into a single integral unit for greater rigidity, safety, and durability.

On all arc welding operations, safety glasses are worn as secondary protection under welding helmets. Spot welders are protected by plastic-type face shields, as are all those engaged in operations involving discing, brazing, and undercoating.

Employees are individually responsible for the care of safety glasses. Worn or accidentally damaged equipment is replaced by the plant commissary. Workers are urged to maintain the visual efficiency of their glasses. Special cabinets in restricted areas help to reduce damage or loss by providing convenient off-shift storage. Damaged glasses are reclaimed by the commissary, which replaces a cracked lens, temple pieces, and side screens. The extent of this activity at Kenosha is pointed up by the 8,000 pairs of safety glasses carried in its inventory.

WORK CLOSELY WITH OPTOMETRISTS

Plant commissaries work closely with the optometric profession in maintaining visual efficiency of workers. Workers wearing prescription glasses are encouraged to replace plain glass with safety lenses. About 70 Kenosha employees each month take advantage of the company's payroll deduction plan for safety lenses. This requires a prescription from the employee's optometrist. An initial fitting is provided by the company, after which the wearer is instructed to return to his optometrist for evaluation.

Should an employee be undecided about changing to a safety lens, a look at the commissary's "rogues gallery" usually tends to make up his mind. This consists of photographs of workers who escaped serious eye injuries by wearing proper protection—a graphic and convincing demonstration of the value of safety glasses.

While preventative measures are a key part of the company's vision program, substantial attention is given to fitting the job assignment to the employee's visual efficiency. Obviously, some jobs demand better sight than others. For example, visual efficiency of machine operators and inplant truckdrivers must be 20-40 minimum. On the road drivers must meet a minimum of 20-70.

All new employees receive a complete eye check as part of their physical examination on joining the company. Vision thresholds are established for close and distant efficiency and the employee's records coded to indicate any work limitations. This might be dictated as "no work on power machinery," or "no work requiring acute vision." In addition to the safety factor, the company places a high premium on visual acuity in its quality control program. Rambler cars have won an enviable quality rating with the public and we guard this reputation zealously. The importance of good vision to the program is evident.

Employees may have their vision reclassified by obtaining necessary corrective glasses. By doing so, many become qualified for higher paying assignments. Eye examinations are repeated every 2 years to detect any change in vision thresholds.

The skills of all departments are utilized in improving visual conditions in the plants. Engineers work closely with the safety department in determining adequate illumination for various work areas. This is especially important on precision work, which often calls for individual lights on machines in addition to overhead lighting. Light-meter studies are a continuing program throughout the plants.

VISION AND PLANT LIGHTING

Light fixtures and windows are cleaned frequently. Most plant walls and ceilings are painted nonglare white to reduce reflections. During the course of light studies, attention is paid to the elimination of distracting shadows. In close work, machines are positioned for maximum light values. This is important to quality work as even clear plano lens of good optical rating tend to reduce the amount of light reaching the eye. If the visual efficiency of the worker is near the minimum required for the job, a minimal loss of light perception might result in poor work performance. Conversely, adequate lighting can contribute importantly to upgrading work quality.

In the event that an employee's visual acuity drops below the standards set for his job, he is usually reassigned to duties less demanding in vision requirements. However, this is done only when it is determined that the employee's poor vision cannot be corrected and he presents a hazard to himself and his fellow workers. There are jobs in automotive plants in which dexterity and the sense of touch are important qualifications. In fact, a totally blind worker was hired in our Kenosha plant to perform one of these assembly functions.

The Kenosha safety director is assisted by four field safety men who spend a good part of their time looking for potentially hazardous situations on plant property. Particular attention is paid to projections or suspended tools and structures that might produce eye injuries. In the constantly changing panorama of an automotive plant, this is a never-ending project, but one which is important to a good plant safety rating.

In case of injury, the worker is instructed to report immediately to his supervisor. The plant hospital provides first aid for minor injuries. If additional medical care is indicated, the employee may consult his own doctor or a member of American Motors' medical panel. The panel includes four eye specialists.

In the main, successful safety engineering is dependent on the degree of cooperation by employees. If the worker is convinced that safety rules are established for his protection and best interests, he will usually observe regulations and follow safe work practices. This is why employee education is all-important to the plant safety record. Safety engineering is the strategy in the war against industrial accidents; diligent and unrelenting programs of employee safety education are the tactics by which the battle is won.

VISION FOR DRIVING

PRELIMINARY REPORT¹ ON A SURVEY, WITH RECOMMENDATIONS FOR AN ACTION PROGRAM

Good vision is an obvious requirement for safe driving, yet millions of drivers have uncorrected vision problems that make them highway hazards. Many are unaware of their handicaps until an accident occurs or they receive some type of eye test.

Fortunately, all but a minute fraction of all licensed drivers could, with the aid of modern science, have vision that is up to par. There is probably no element of highway safety with a greater undeveloped potential for improvement. The remedies are known, available, and being applied, but not extensively enough.

In many States only casual eye tests have been made by driver license examiners. Insufficient funds have been available for driver licensing in general, and facilities for anything but a superficial eye chart test have seldom been

¹ Released by American Optometric Association, 4030 Chouteau Ave., St. Louis, Mo.

provided. Often there has been unjustified fear that large numbers of drivers might be denied licenses if more comprehensive tests were given. There is lack of faith in moderation and lack of information on the possibilities of correction of below par vision. State laws on vision tests have been lax, and there has been little pressure of public opinion for progress beyond the first perfunctory eye tests of a generation ago.

A study of 3,000 drivers

For these and other reasons, there has never been adequate information on the extent of vision problems among drivers. In 1957 a voluntary vision-screening survey was launched by the American Optometric Association and its woman's auxiliary in cooperation with the Automotive Safety Foundation, the National Home Demonstration Council, and other organizations. Its basic purpose was to find what percentage of licensed drivers fall below acceptable standards on the major visual requirements for safe driving.

Portable screening equipment was set up in scores of communities in 25 States. Drivers were invited to have their vision tested by standard techniques, without charge or obligation. The tests were administered by laymen, but supervised by licensed vision specialists. Almost all nontechnical details were handled by women's organizations—members of the woman's auxiliary of the American Optometric Association, National Home Demonstration Council, and the women's division of the Automotive Safety Foundation. Both men and women drivers were tested, and in about the same proportions as licenses are held by male and female drivers.

Elements of safe vision

While much technical terminology is used in describing vision problems and vision tests, anyone capable of driving can understand the visual requirements for safe driving. The results of the tests and the principles of correction of the common shortcomings are just as readily understood. The tests in the survey dealt with these essential visual "skills":

Acuity—ability to focus and see clearly with each eye separately and both eyes together, particularly at a distance of many feet or yards. This is essential for seeing danger, reading road signs in time, and for general adaptation to the critical driving environment. It is essential but only a small part of the total visual requirement. The tests were under carefully controlled conditions for as much uniformity as possible. It is the only "skill" tested in the conventional Snellen letter-chart test used by most driver license examiners, and usually the tests are under such varying conditions of light, cleanliness of test charts, etc., that even this, the only usual test, is far from adequate.

Depth perception—ability to judge space and distance. For most drivers this depends on good binocular (two-eyed) vision, because space and distance are determined by the brain in relating the image from one eye to the image from the other at the slightly different angle that results from the separation of the two eyes. Depth perception is essential for judging whether a car can be passed safely or whether a driver has time and space to maneuver from one lane to another among fast-moving vehicles on a highway. The screening instruments used in the survey tested both binocularity and space judgment—neither of which is covered adequately in the conventional eye test for driver licensing.

Field of vision—ability to see to the sides when focused straight ahead. This, of course, is essential to detect crossroad traffic, pedestrians at the side of the road, and for ease in watching interior and exterior rear-view mirrors and for an adequate grasp of the visual environment of driving. In most States no attempt is made to test this important safety requirement.

Muscle balance—the ability of the two eyes to point simultaneously and easily to the object to be seen. In many persons there is a tendency for at least one eye to point slightly upward or downward (vertical phorias) or to the right or left (lateral phorias). This interferes with good binocular vision and hampers acuity, depth perception, and field of vision.

Good night vision is another important requirement, but tests for it are complex and the survey did not include glare-resistance tests. Good night vision for driving depends on three abilities—resistance to being blinded by bright light! quick recovery after exposure to bright light; and ability to see under conditions of low illumination.

Pilot survey results

Following are the percentages of drivers found to fall below acceptable standards on the major visual requirements tested in the AOA survey which at the stage of the preliminary report had covered 3,000 licensed drivers in 25 States:

	<i>Percent</i>
Inadequate depth perception.....	22
Inadequate acuity.....	21
Lateral phorias.....	17
Vertical phorias.....	13
Inadequate field of vision.....	10

Dr. Wendell E. Bryan, Denver, chairman of the AOA Committee on Motorists' Vision and Highway Safety, urges caution in generalizing from this pilot survey. However, a broader study is now underway, and the results of it and other related studies indicate that the percentages are close to those that will be found in any cross section of drivers. It should be noted that drivers were tested with their driving glasses if they ordinarily wore glasses for driving, indicating that persons required to wear glasses for driving need periodic examinations, also.

The conditions found in the pilot survey are also confirmed by routine examinations of the 75 million adults who visit optometrists and ophthalmologists periodically for visual care. Driving has become so common that the vision of the typical adult may be considered close to the vision of the typical driver.

While the pilot study cannot be relied on for precise information on geographical differences, it does indicate wide variation. Most notable is the high rating on visual efficiency of drivers in a State like California where there has long been emphasis on safety and vision as a safety factor. Some rural States, particularly in the Southeast, seem to show about twice as high a percentage of visual problems among drivers as in California. The assumption may be made that, in some States, emphasis on safety and vision has caused drivers to obtain the vision care they need. Conditions can be improved, and are, where action programs are put into effect.

Correctability

As to the correctability of the vision of those failing the tests, valuable studies have been made by Dr. H. W. Hofstetter, director of the Division of Optometry, Indiana University. From studies of 332 clinic patients, he estimates that only three-tenths to six-tenths of 1 percent of a large cross section cannot be corrected to meet the requirement of acuity (20/40 Snellen in the better eye). His report also shows that 96 percent of the driving population can be corrected to 20/20 in the better eye.

Drivers with heterophoria can also be greatly assisted by proper professional care, and correction will greatly improve depth perception and field of vision. However, one of the important results of better vision testing and vision care should be to make drivers more conscious of their visual capacities. The driver who knows that he lacks adequate depth perception can compensate for his shortcoming by being especially cautious in situations where good depth perception is called for. He can learn to look to the side more frequently if he knows that he does not have the peripheral vision he should have. If glare bothers him or if he is abnormally handicapped in low illumination, he may reduce his night driving or reduce his speed.

Dr. Bryan says that "vision is as personal as one's fingerprints"; no two eyes are alike, and even less are two pairs of eyes. The driver who cannot meet such minimum standards as used in the AOA survey should have a thorough examination adapted to his particular needs, and correction for his particular requirements. With the aid of the science and art of visual correction plus conscious adaptation to his capacities or lack of them he can do much to prevent himself from being a highway hazard.

An action program

Individuals, communities, and organizations seeking an action program for traffic safety may direct their activities toward these "vision for driving" goals:

1. Periodic reexamination of the vision of all drivers. Millions of drivers have had their licenses repeatedly renewed since the days when no eye tests were required for licensing; more millions who had an original test have never been tested again, in spite of the fact that aging is the greatest single contributor to poor vision.

2. Thorough vision examinations for accident repeaters.
3. More extensive use of licensed vision specialists as consultants to licensing examiners, traffic courts and other government agencies dealing with highway safety.
4. Adoption of minimum vision standards in the following skills:
 - (a) Acuity in the better eye;
 - (b) Glare resistance;
 - (c) Adaptation to low illumination;
 - (d) Distance judgment;
 - (f) Breadth of field of view;
 - (f) Color vision.
5. Dissemination of more information on the fact that drivers lack necessary visual skills without knowing it; and that almost all shortcomings can be corrected with proper vision care. Voluntary screening, voluntary correction and voluntary caution can bring immediate results that compulsory laws may never achieve.

For more details on the survey referred to and the joint program now underway, any of the following major participants may be consulted:

Motorists' Vision and Highway Safety Committee, American Optometric Association, 4030 Chouteau Avenue, St. Louis, Mo.

Safety Division, the Woman's Auxiliary to the American Optometric Association, 4013 Byers Avenue, Fort Worth, Tex.

Women's Division, Automotive Safety Foundation, 200 Ring Building, Washington, D.C.

Mrs. O. G. Rushing, Safety Chairman, National Home Demonstration Council, Shawnee, Okla.

AMERICAN OPTOMETRIC ASSOCIATION

Committee on Motorists' Vision and Highway Safety:

P. N. DeVere, O.D., Trustee Consultant

Wendell E. Bryan, O.D., Denver, Colo., Chairman

William E. Hervey, O.D., Los Angeles, Calif.

Everett L. Porter, O.D., Belfast, Maine.

THE OPTOMETRIST AND SAFE DRIVING

INTRODUCTION

Without a doubt the practicing optometrist is the most frequently consulted professional man on matters of eligibility for driving. This places on the optometrist a great responsibility for the effectiveness of driver licensing programs in the combating of danger on the highway—public enemy No. 1 in its toll of fatalities, injuries, and physical damage.

The following outline is intended as a guide to the optometrist in his daily encounters with this terrible national problem. The information, opinions, and recommendations incorporated in this outline are endorsed by the American Optometric Association Committee on Motorists' Vision and Highway Safety as representing the best and most consistent views of leading researchers and recognized authorities.

1. ADVICE TO THE PATIENT WHO DRIVES

The optometrist should discuss willingly and frankly the driving problems of the patient in terms of:

(a) Glare, or difficulty in seeing under conditions of bright, stray, or rapidly changing illumination.

(b) Poor vision in dim light.

(c) Poor central acuity, or failure to discriminate signals, road signs, and small hazards.

(d) Poor peripheral vision, or failure to detect the existence of hazards originating peripheral to the point of regard.

(e) Poor color vision, or failure to interpret correctly signals and signs employing color schemes.

(f) Diplopia, resulting in misjudgment of direction of approach of objects in the field of vision.

- (g) Lack of ability to judge distance and depth accurately.
- (h) Difficulty in adapting to changes in fixation distances.
- (i) Inability to recognize briefly seen objects quickly and easily.

2. THE PHILOSOPHY OF DRIVER LICENSING TESTS

It should be emphasized and reemphasized that it is not the basic purpose of license tests to eliminate drivers, but rather that the tests are intended to enforce the maintenance of the best possible driving skill and attitude on the part of each driver. Very few persons are unable to qualify under even the highest existing licensing standards. The great majority of disqualifications are due to negligence and unwillingness to take the steps to comply.

3. THE RELATIONSHIP OF VISION TO SAFE DRIVING

Vision bears a relationship to safe driving analogous to that of good brakes, adequate road markings, good highway design, and knowledge of the rules of the road. None of these factors assures safety or good driving. But, they are prime factors which make good driving possible. The driver with superior vision and superior equipment who exploits these advantages is a greater hazard on the highway than the less fortunate driver who recognizes and respects both his own limitations and those of fellow motorists. Such complexities in the relationship of good vision to safe driving have made conventional statistical analyses relatively meaningless.

4. SERVICE TO DRIVER EXAMINING PERSONNEL

Perhaps the greatest single problem that licensing agencies face is that of maintaining good rapport with wary and belligerent applicants. Such persons often exaggerate unfortunate errors and misjudgments that may creep into the routine licensing procedures and thereby undermine the objectives of the total licensing programs. The optometrist is in the best position to minimize this problem by:

- (a) Getting acquainted with the driver licensing personnel in his community, discussing such problems as they arise, and making his consultative services available.
- (b) Becoming personally familiar with the visual licensing procedures and requirements of his State.
- (c) Enlisting the cooperation of his fellow optometrists in the development of a helpful attitude toward the driver licensing personnel.
- (d) Encouraging the establishment and maintenance of uniform testing conditions not only in licensing stations but also in optometric offices consulted by examinees.
- (e) Preparing his patients for the driver tests, letting them know what to expect, and explaining to them the problems of reliability of vision test scores. He should not tell a patient that he will pass or fail; rather, he should simply tell the patient how he can expect to do if his visual responses at the licensing center are the same as in the optometrist's office. Discrepancies between the license examiner's findings and the optometrist's findings should be resolved by retesting and consultation, not by presumptive discrediting of the procedures employed.
- (f) Giving due credit to the licensing personnel for excellence of work and their conscientious administrative efforts. In particular the optometrist must respect the professional responsibility of the licensing personnel to make the decision to grant or deny a license to drive. The optometrist's contribution is that of implementing its validity and effectivity.

5. PROFESSIONAL RESPONSIBILITIES FOR SAFE DRIVING

In his professional capacity the optometrist must assume the same type of responsibility toward safe driving as a cooperative objective as is normally shared, for example, by the highway engineer, the automobile designer, the traffic control agencies and driver education personnel. In this role he should be studiously familiar with research studies and authoritative evaluations of vision as a factor in driving. He should be prepared to give reliable information and advice to legislative, judicial, and regulatory agencies responsible for establishing laws, standards, and procedures involving vision in driving.

He should know the professional organization facilities and sources of information accessible to him. His reference files and professional library should be kept up to date on related matters. He should be prepared and willing to serve on safety committees for PTA groups, civic clubs, and appropriate commissions.

In short, he must ever be mindful of the fact that he is expected to be the best informed person in his community on vision as a factor in safety, and that being informed is not merely a matter of holding strong convictions and/or unsubstantiated opinions.

6. VISION STANDARDS FOR DRIVING

Perhaps the most vulnerable stand to take on vision standards is that they be fixed by arbitration. Granted that in any administrative program there must be fixed limits, the real success of this type of program requires the application of judicious considerations within a framework of limits. Such considerations involve highly professional evaluation of how effectively a person uses the visual skills with which he is blessed or which he can attain.

Within this concept, vision standards may be classified in terms of (a) desired and (b) minimum visual conditions. The desired visual test scores represent those that are normally attained by persons who suffer no visual impairment or handicaps. The minimum visual test scores represent those below which the person would be deemed to be unable to cope safely with the ordinary visual demands and conditions of driving. These may be established in part by statistical studies and in part by direct evaluation of the visual stimuli which serve as action criteria, landmarks, clues, and hazard indicators in driving.

Standards that have been recommended and/or adopted by many agencies tend to vary between these two limits and may be classified approximately as follows:

Desired standards.—20/20 or better in each eye, with normal binocular vision, no field restrictions, no muscular anomalies, and no color vision deficiencies.

Minimum standards.—20/40 or better in one eye, absence of diplopia, and intact fields to at least 70° in each lateral direction from straight forward position.

More significant than the application of such standards, however, is the application of sound procedure in the licensing of drivers within these limits, since the great majority of drivers who do not seek professional attention score inside this range. The primary consideration to be made in such cases is that the driver shall maintain and employ the best vision attainable. This he should regard as his moral as well as his legal obligation.

In other words the driver who can attain 20/20 with the proper lense correction should not be permitted to drive without them just because he can see better than 20/40 unaided. Similarly a person, e.g., a hyperope, who obtains 20/20 both with and without his glasses should be obliged to wear his glasses for driving if they provide demonstrably greater accomodative and/or binocular efficiency.

7. PUBLIC EDUCATION

The unpardonable 30-year lag of adequate licensing standards behind the growing toll of highway accidents must be attributed to one major factor—the lack of public education. Reduction of the accident toll demands a co-operative effort that allows no room for exceptions. The individual caution exercised by 99 drivers carries little reward when 1 careless driver roams the highway. The license to drive must be regarded as a judiciously granted and earned privilege, not an inalienable right.

In his role as a citizen the optometrist must recognize that the latter concept is developed by public education, out of the resources of scientific study, political development and the legal interpretation of the constitutional rights of individuals. Not only because of his professional identity with one of the important aspects of driver qualification, but more especially because of his natural role as a community leader and opinion molder, the optometrist should participate in the complex undertaking of public education relative to the facts and concepts of driving safety. It is not enough to say that vision is important. The greater problem is that of making the public aware of the significance of driving safety and the means of accomplishing it.—The American Optometric Association, Inc., 4030 Chouteau Avenue, St. Louis, Mo.

Dr. EWALT. Thank you, Mr. Chairman. To begin with, about 30 million Americans every year seek vision care. Even more important is the fact that there are many millions, particularly schoolchildren, who need vision care and don't get it. Certainly the need for optometric vision care grows with the complexity of civilization in which we live and with the increase in educational demands for all kinds of activity. To read and to study in this age of science and technology is fundamental to achievement.

Optometry, with its unique concept of functional vision problems, in other words, in visual performance, is uniquely prepared to deal with these kinds of problems. The objective of the practicing optometrist is not only to be sure that the patient can see clearly, which we might think of as "squirrel hunting vision," but also that he is comfortable and that he is efficient in his seeing; in order that he can maintain efficient study, or laboratory activities, which are essentially near-point activities, over long periods of time.

Optometry is the Nation's first line of defense against blindness. When pathological conditions occur, optometrists refer these problems to medical specialists who are especially prepared and trained to deal with these problems.

The optometrist performs about 65 to 70 percent of the eyesight examinations in this country, does about 75 percent of the contact lens work, and about 80 percent of the work in orthoptics and visual training. So that somewhere around three-fourths of all who seek vision care in its broadest sense first turn to the optometrist. Optometrists, as commissioned members of the Medical Service Corps of the three services, render about 85 percent of the eyesight work that is done for the members of the Armed Forces.

You will find in the material that was presented to you a table showing the number of optometrists and the distribution of optometrists. This is exceedingly important as far as getting service to all of our people as conveniently and economically as possible.

The emphasis that optometry placed on meaningful seeing is a concept that is unique to optometry and is based on the unique education and training of optometrists. Meaningful vision is operating when the person has the best possible and most efficient vision for the tasks that he needs to perform, whether that person is a housewife or a student or a crane operator. These are considerations that come into the service of an optometrist.

A widely accepted biological fact is that anatomical completion or growth leads only to minimum performance. I mean by that, that track meets are not won by youngsters who have good legs and a good stout heart. Track meets are won by perfectly normal youngsters who have learned to walk and run and then are placed in the hands of a skillful track coach who enhances their performances.

The same thing is possible as far as vision is concerned. In the cross-eyed youngster, orthoptics and visual training procedures can correct many of the cases of cross-eyedness. In the matter of vision and child development, we have reached something that is at the very heart of our need in a number of problems as far as the country is concerned. Dr. Lois Bing, who was for many years chairman of our Committee on Visual Problems of Children and Youth, made a report to the White House Conference of 1960 which you will find as part

of the appendix of your material. She discusses there the visual problems of schoolchildren from the preschool level right through the college level. The thing that I think we need to realize is that recent development and understanding in the broad field of child development clearly indicates that visual problems begin very early in the child's life. For instance, Dr. Arnold Gesell, of the Clinic of Child Development at Yale University, says that vision is the key to the child's whole individuality. To understand the child, we must know the nature of his vision.

Further, in these studies—this study and in other studies—we find that visual problems can create performance problems as far as children are concerned and also create problem children thereby. A child who is unable to keep up with his work in school becomes a disinterested child. He is often wrongly accused of being lazy. If there are not the most stable sociological conditions around him, it is entirely possible he will become a delinquent or that he will become a school dropout.

We believe as a profession that preventive vision care is a matter of the utmost importance as far as the future of this country is concerned. Efficient, easy seeing where the images of the two eyes fuse together, where the eyes are coordinated in their motor activity, where we do not have a child that is skipping words or even whole lines or reversing words, who has a speed and span of perception as adequate to his needs in this reading situation, is a child that is very apt to achieve and get ahead in schoolwork.

Optometry has played a major role in aiding these children, particularly in the development of the adequate visual skills which are prerequisite to achievement in reading.

I want to stress the fact that modern optometry is based on this concept of functional vision and takes into account the entire seeing process, physiological and psychological. Just seeing clearly is not enough. Each child must see comfortably and efficiently in order to do his best in reading.

Of the many causes of reading retardation, and certainly we recognize that there are many, numbers of studies indicate that faulty vision performance, not lack of visual acuity, but faulty vision performance is the one most frequently found. In retarded children we find another unique opportunity for service because if the retarded child is to make the best possible use of his abilities, it is important that he perform effectively visually. Some studies show that these retarded children have functional vision problems which need to be straightened out.

And you will also find attached to the White House Conference report a paper by Getman on optometric visual care of the brain-injured child. Certainly we are concerned with the 7½ million of school dropouts that are anticipated for the years 1960 through 1970. I have already indicated to you why we know that a certain number of these school dropouts result from inefficient vision, the lack of ability of the child to perform in school, particularly in the area of reading, and we have cited a number of studies to you in the paper which show the importance of this particular factor.

Optometrists are concerned with industrial problems. A number of optometrists serve as consultants to industry. They are develop-

ing visual efficiency for productivity. We would estimate that if the 300,000 industrial plants in the country are to get the kind of help that a few plants are now getting, it would require at least 4,800 additional optometrists to do that one job alone. On the basis of estimates, it would look as though the saving to the Nation could be in the order of \$4 billion if what we know today about visual efficiency, as it relates to industrial production, were applied to all plants as it is to certain individual plants.

I am sure that the members of the committee will agree that one of the things to which we need to give serious consideration is the matter of highway safety. When we think back to the visual demands or skills that were necessary to drive "old Dobbin" down a country road at about 5 miles an hour and compare them with the visual performance skills that are necessary to drive an automobile at 70 miles on our freeways, we realize they are two completely different things. Clearness of vision is only one of the visual factors needed. We must have a full field of vision. We must have good depth perception. We need adequate glare recovery. We have got to have adequate color vision and a number of other factors that enable the driver to perform the 90 percent of the judgments that he makes behind the wheel of a car visually.

And incidentally, as our population ages, we have an increasing need for vision service. Studies reveal that 80 percent of the drivers over 60 years of age have visual problems that can make them risks on the highway.

Now, all of the things that might be done, for this population of 191 million people must be performed by only 17,000 practicing optometrists, or one optometrist for every 11,279 persons, as your chairman has indicated. Now, this is a wholly inadequate ratio to do what ought to be done.

I am leaving with you not only these books but the pamphlets that are appended here. They clearly point out the need for increasing the number of people that must be available to service all of the vision needs of the country.

Incidentally, in the war on poverty, we are talking about retraining older people. Certainly, from the viewpoint of an interested citizen, that would seem to be a very important thing to do. But, I wonder how successful we are going to be in retraining these people unless they have adequate visual performance. They are going to have to be able to not only see clearly but to see effectively in order to study and do that sort of thing. I suspect that if we are going to solve this problem of poverty, we are going to have to begin at the preschool level and prevent it by seeing that these people, these boys and girls coming up, are physically, visually, and mentally able to compete in the educational system. If we do, I am sure that ultimately we can stamp out the need for retraining the older citizen.

Optometry is interested and has made contributions to the care of the near-blind through special devices such as telescopic and microscopic lens systems. It is the philosophy of the profession that these boys and girls should be kept in a normal school environment as long as it is possible to keep them there, as long as they can compete, in order that they will not be set aside as special individuals unable to compete in the normal world when they get through.

So, let me conclude this way. Medical and dental students today have thousands of dollars of loan money available to them for every dollar that is available to an optometry student. We as a profession have to compete for the same group of people.

Yesterday, in the newspapers, there was a story telling about the fact that below the upper 20 percent in intelligence in our high school graduates there is a very large group of youngsters who don't have the opportunity to go to college at all for financial reasons. We, as a profession, would like to have some of these very bright but financially disabled young people that live in every State of this Union. Many of them would take the risk if they were sure that behind them was the opportunity to borrow money to complete their education. I feel very definitely, gentlemen, that a failure to amend this law will result in a reduction in the number of students who will study optometry in the years to come. Any handicap in recruitment means that ultimately there are going to be fewer optometrists to do all of the things I have indicated to you in a brief way. Optometrists are uniquely prepared to perform in the interest of the visual health and efficiency of the American people.

Thank you, Mr. Chairman.

Mr. ROGERS of Florida. Thank you very much, Dr. Ewalt.

Congressman Schenck?

Mr. SCHENCK. Yes. Thank you very much, Mr. Chairman.

First I would like to make an observation off the record.

(Discussion off the record.)

Mr. SCHENCK. Now, on the record, I would like to commend Dr. Chapman, Dr. Ewalt, and these other gentlemen for coming here and calling our attention to this very necessary amendment, it appears to me, to the Public Health Service Act.

I am wondering, Dr. Ewalt, if you have statistics showing that eye exercises, which I assume are a definite part of your profession, are really producing helpful results.

Dr. EWALT. Yes, sir. We can very well supply—I do not have them off the top of my head, but we can very easily do that. I would just like to point out the fact that the chairman of this committee in his earlier experience in the military dealt with one part of visual training, as I understand it, recognition—did you not? Recognition—

Mr. ROGERS of Florida. That was Congressman Roberts, actually, who is the subcommittee chairman.

Dr. EWALT. I see.

Mr. ROGERS of Florida. That is correct. Roberts.

Dr. EWALT. And I was interested to see that the President's family has found it important to do this kind of thing, in the interests of the welfare of their own children. I saw a news story here this past week. But statistically we can give you the information.

Mr. SCHENCK. Well, that is fine, and I think it would be valuable to know that these exercises are helpful in a great many instances. In the instance of a member of the President's family, now becoming employed, it would appear that they are helping in the unemployment situation.

On the question of highway safety, in which I have been very deeply interested for a long time, and as very much of an amateur photographer, I know that certain types of filters added to the lens on the

camera will permit making photographs through fog, haze, and so on. I am wondering if there is any advantage to a similar type of filter such as the yellow lens or some other color in helping highway drivers to see through fog or whether or not that cuts down vision and is therefore wrong.

Dr. EWALT. There is a committee on night visibility that is working on those kinds of problems. The approach has been made through different colored lights at intersections, and so forth, in handling the fog situation, and in using different colors in the pavement of the highway itself. And all kinds of filters are being experimented with on the basis which you have suggested and the work is not yet completed.

Mr. SCHENCK. Such as clip-on glasses, you mean.

Dr. EWALT. That is right. Numbers of things. A great deal of work is being done in the field.

Mr. SCHENCK. Well, our committee has been very deeply interested in this entire matter of highway traffic safety as well as health matters, and I have often wondered whether or not these filters actually cut down vision or whether they help vision.

Dr. EWALT. Well, I think we ought to say for the record that most of the filters developed cut down vision and are not to be recommended. The only reason I said most is because they are still experimenting with certain types of lenses but we do not have the final answer. The School of Optometry at Indiana University is doing a great deal of work in this field.

Mr. SCHENCK. Thank you very much, and thank you for your testimony.

Dr. CHAPMAN. I want to make a suggestion, and it might not be practical, but I suspect that many of the questions which some members of the committee have are going to be rather thoroughly amplified in subsequent statements we make, and I wonder if we could make those in brevity and then have each of you record your questions and record the whole group because we have several experts, Congressman Schenck, in what you just mentioned, here in the room and could later give you a more definite answer.

Mr. ROGERS of Florida. The committee would be glad to do that, and thank you very much, Dr. Ewalt, for your testimony.

STATEMENT OF DR. GORDON HEATH, O.D., PRESIDENT, ASSOCIATION OF SCHOOLS AND COLLEGES OF OPTOMETRY

Mr. ROGERS of Florida. Dr. Heath, president of the Association of Schools and Colleges of Optometry. The committee will be glad to hear you now, Dr. Heath.

Dr. HEATH. Thank you, Mr. Chairman and members of the committee.

I do not wish to presume on the valuable time of this committee. I have submitted a more complete statement. I would like here just to summarize a few of the most important points of that.

Mr. ROGERS of Florida. That will be fine. Without objection, your full statement will be made a part of the record at this point.

(Dr. Heath's statement in full follows:)

STATEMENT OF GORDON HEATH, O.D.

Mr. Chairman and members of the committee, I am Dr. Gordon G. Heath, professor of optometry, of the division of optometry, and chairman of the graduate school committee for physiological optics, at Indiana University.

I am presently serving as president of the Association of Schools and Colleges of Optometry, an organization composed of all the optometric educational institutions of the United States and Canada. It is on behalf of the 10 accredited U.S. schools of optometry that I submit this statement in support of H.R. 8546 to provide Federal loans for optometry students. I am appending a table of the accredited schools and colleges of optometry in the United States, their deans, and year organized to this statement, and would like you to have these copies of each school's catalog which I have brought with me.

The number of our institutions is small, but their collective responsibility to the public and to the profession is large, indeed. The Nation relies on these 10 schools to provide the professional education and training of the practitioners who will provide over 70 percent of the vision care received by the American people. To meet this important obligation the schools have continuously advanced their educational programs to provide solid backgrounds in the basic sciences pertinent to optometry, and to incorporate the many recent developments in the field of vision care. I want to outline some of the facts about optometric education, about optometry students, and about optometry schools and some of the problems confronting them which have a direct bearing on their accomplishment of this mission. These facts, I believe, will demonstrate the importance of this proposed legislation.

Today's optometrist is very well trained. Tomorrow's will be even better trained. A major change is now taking place in optometric education. Recent advances in the field of optometry have been so numerous and extensive that the regulation 5 years of college level training has been stretched to its limit in order to incorporate these advances. Four of the ten schools have already added an additional year, and others will follow their example.

To become a licensed optometrist today it is necessary to pass a rigorous State board examination in the State or States where one wishes to practice. Such examinations are open only to graduates of the 10 schools of optometry, which currently are accredited by the American Optometric Association's Council on Optometric Education, the official accrediting agency recognized by the National Commission on Accrediting.

Graduation from one of these schools requires a minimum of at least 5 years study beyond high school. This includes 2 years of preoptometric education which may be taken at any accredited junior college or university, followed by at least 3 or, in some cases, 4 years of professional study in an optometry school. The 4 years of preoptometric education must include mathematics, physics, chemistry, and biology, plus English, history, and other liberal arts courses.

Over half of the students now enrolled in optometry schools had completed more than 2 years of college, and nearly one-third had earned bachelor's degrees before entering optometry school. The specific courses in the 3- or 4-year optometric program vary among the optometric institutions, but the general study program is very similar in all schools. Subjects typically include geometric, physical, physiological, mechanical, and ophthalmic optics; general and ocular anatomy; general and ocular physiology; general and ocular pathology; physiology; bacteriology; theoretical and clinical optometry; orthoptics; and visual training, and industrial and occupational vision. It requires careful preparation and planning for a student to complete the program in 5 years.

One of the schools, Pennsylvania State College of Optometry, has since 1955 required completion of a 6-year program (2 years preoptometry, 4 years professional study) for graduation. Another, Ohio State University, has just this year adopted a similar requirement. Two other schools offer an optional sixth year, and it is expected that they and the remaining 5-year schools will soon adopt a mandatory 6-year program. As a result of modern vision research and advances in optometric techniques, too much information had to be crammed into a 3-year curriculum, imposing an unfair and unreasonable burden on students and faculty alike.

A study, now being conducted by the Association of Schools and Colleges of Optometry, of the actual number of hours of instruction at each institution re-

veals that some of the schools actually provide more hours of instruction in a 3-year professional program than would be required in a normal 4-year college program. An average load for a full-time student at most colleges and universities is 15 credit hours per semester. In optometry schools the load has, in some cases, reached or even exceeded the classtime equivalent of 21 credit hours per semester.

So, a change to a 4-year course will add relatively little to the content of the curriculum, but it will redistribute its subject matter into courses of more appropriate and reasonable lengths and weight.

It costs an average of \$2,200 per year to train an optometry student. This figure is not markedly different from what it takes to educate a student in any discipline requiring laboratory instruction. If it is less than the instructional cost in some fields, the reason lies in forced economies and restricted funds, especially among the schools not affiliated with State universities. Lower per student instructional cost does not, in general, signify greater efficiency in providing comparable training. Instead, it usually indicates lower salary scales for faculty and staff, larger classes, less laboratory equipment, and less construction and maintenance of facilities.

As costs rise and enrollments grow, it becomes imperative that optometry schools receive State and Federal support to aid in the necessary construction, extension, and rehabilitation of facilities if the schools are to continue to provide adequate training for the Nation's total supply of future optometric practitioners.

Now, what does it cost to train an optometry student?

Before giving you actual figures, let me point out that since we have fewer schools in the optometric field than there are in dentistry or medicine, chances are that many optometry students will have a nonresident status, which in itself results in higher tuition fees. In addition, the optometry student will have higher travel costs, since he must come to the school from a greater distance than most medical or dental students who live in closer proximity to the schools of their choice. These two factors, greater nonresidency, greater travel distances, must be kept in mind as we compare tuition fees between a particular school of optometry and a school of dentistry. For example, at the Ohio State School of Optometry as many as 25 percent of optometry students are out-of-Staters.

Let's look at some comparative figures. As an example, I have chosen the optometry, medical, and dental schools at Ohio State University. Ohio State's School of Optometry is just starting on an expanded program, a 4-year instead of a 3-year program.

1964-55

OPTOMETRY

Resident tuition (per year)-----	\$486
Nonresident-----	981
Books and supplies (minimum)-----	80
Equipment:	
1st year-----	120
4 years-----	480
Room and board:	
Per month-----	105
9 months-----	950

DENTISTRY

Resident tuition (per year)-----	755
Nonresident-----	1,250
Books and supplies-----	100
Equipment:	
1st year-----	415
4 years-----	1,208
Room and board:	
Per month-----	90
9 months-----	810

MEDICINE

Resident tuition and fees-----	690
Nonresident-----	1,140
Books and equipment (excluding cost of microscope, which runs between \$400 and \$600)-----	150
Room and board-----	1,000

I want to add that as far as the discrepancy in costs of room and board is concerned, I have used the most up-to-date figure from the optometry school at Ohio State; presumably the figure for dental students' room and board, which comes from a booklet published by the American Association of Dental Schools, Chicago, is now comparable.

In addition, most optometry students find it necessary to also attend a summer semester, thus adding \$162 and \$327, respectively, to their total tuition costs. And I have not even added the additional costs which they incur: For example, they must buy their own meals during part of the weekend, and there is the matter of incidental fees amounting to another \$30.

Tuition fees in the various schools range from \$840 to \$1,280 per year, the average being \$1,050. This excludes State universities that offer lower fees for in-State residents. Thus, students pay approximately half the cost of their education. The remaining cost must be met from the income of the public optometry clinic which each school maintains as part of its training program and investments from alumnae fund-raising drives. The State university schools, of course, receive tax support and also receive a portion of the license fees which each registered optometrist in his State must pay annually.

In addition to his tuition fees, each student must purchase certain instruments and tools, at a total average cost of about \$300, as well as books and academic supplies. The remaining costs of room, board, clothing, laundering, transportation, and incidentals vary widely according to individual taste and resources.

With the extremely heavy course loads now required in the optometric schools, students frequently find it impossible to hold a part-time job to help defray their expenses while attending school. Those who do work, often find that their grades suffer accordingly, a fact which usually precludes any possibility of winning a scholarship.

Scholarships are available at all schools of optometry. But they are very limited in number, and modest in amount, usually between \$50 and \$400 per year each. They are variously provided by these schools themselves, by State optometric associations, and their woman's auxiliaries, and by alumnae organizations. A very few come from other sources.

Many students rely on summer employment and family funds to see them through. If these income sources prove inadequate, they must obtain student loans. Some of the schools have small student loan funds which have been supplied by alumnae or by service organizations. These will accommodate only a small fraction of the need, and they are generally reserved for emergency purposes only.

Although the National Defense Education Act student loan program has been helpful to some optometry students, it has been inadequate at most schools. Dr. Chester H. Pfeiffer, dean of our school of optometry at the University of Houston, testifying last year before this committee, pointed out that the National Defense Education Act gives first choice to students in education, languages, and the like. National Defense Education Act loans at State universities are usually gone before optometry students receive consideration.

Then, too, the National Defense Education Act loan program was designed primarily for undergraduate college students, particularly those planning to go into the teaching profession. As in the study of medicine, dentistry, and osteopathy, the high cost of an optometric education requires a higher loan ceiling than is available to students under the National Defense Education Act. The National Defense Education Act program forgives up to 50 percent of loans for teaching in elementary and secondary schools. There is no similar forgiveness for health professions whereas there is such forgiveness under the Health Profession's Educational Assistance Act for doctors who set up practice in areas critically short of health personnel.

The Health Profession's Educational Assistance Act is also operated by the individual schools of the health professions. Exclusion of optometry from the Health Profession's Educational Assistance Act therefore constitutes an undesirable disadvantage in optometry's recruitment program.

The need for training additional optometry students is acute. For the Nation now faces a serious shortage of professional optometrists. There are about 21,000 licenses issued to optometrists in the United States. On the basis of the average practice span of 30 years, 700 new licenses per year would be required just to maintain that total number. However not all of those licensed are actually practicing full time, and the figure also includes optometrists licensed in more than one State. The actual number of working optometrists is about 17,000.

It has long been held that an average ratio of 1 optometrist per 7,000 population is needed to provide even minimum adequate vision care. The current national average is 1 per 11,250 population.

Even with careful redistribution, geographically, of optometrists to provide uniform coverage, there still exists a great need for additional optometrists. A total of about 30,000 optometrists is needed to provide the minimum adequate vision care for a nation of nearly 200 million people.

As longevity increases, raising the average age of the population, the need for optometric services also increases markedly. So the estimate of the need for 30,000 optometrists is assuredly a conservative one. To meet this need the optometry schools must graduate at least 1,000 new optometrists each year. To do this their facilities must be expanded. Enrollments in optometry schools increased sharply for several years following World War II, but even these large increases did not meet all needs created by low enrollments during the war. Enrollments declined again during the mid-1950's as veterans completed their studies, reaching a low point in 1958 when only 368 new students were admitted in the 10 schools. Since then, new enrollments have increased as follows:

	<i>Students</i>		<i>Students</i>		<i>Students</i>
1959-----	373	1961-----	438	1960-----	550
1960-----	412	1962-----	497		

Applications for admission at all of the schools have increased each year since 1958. And it is expected that the current year will see several of the schools forced to reject otherwise qualified applicants because of space or facility limitations. Career inquiries directed to the American Optometric Association in the first 4 months of 1964 show an increase of 23 percent over the number of inquiries for the same period in 1963. Similar experiences are reported at all of the schools. The stated total capacity of the 10 schools of optometry is less than 2,000 students. With the adoption of the 4-year professional curriculum, the capacity of the schools will be only about one-half the capacity needed to provide the minimum requirement of 1,000 graduates per year.

I have mentioned so far only the needs of more American trained optometrists to take care of the vision care of our population and the education of future optometrists. But today we have obligations, as Americans, that go far beyond our own needs, that transcend national borders, and reach from one end of the world to the other.

For many years, American optometric schools have acted as a magnet on foreign students, men and women from every continent. Right now, for example, Indiana University's School of Optometry has students from the Philippines, India, Britain, Canada, France, and Australia. In the recent past that school included students from Ghana, Kenya, and Thailand. At the School of Optometry of the University of California, there are currently a number of students from Iran, Holland, Japan, and India.

Some students from abroad who come to study here take undergraduate training in optometry; others take training leading to a doctorate. But there are few optometry schools in existence outside the United States. For example, throughout most of the Far East and the Near East, optometry does not exist as a profession. There are probably less than 100 fully qualified optometrists in those areas. Only in a few countries, including the United Kingdom, Colombia, the Philippines, Japan, Canada, and Australia, can it be said that the profession of optometry, in our sense of that term, exists.

The need for vision care both in quantity and quality around the world is urgent. Potential optometrists from many countries will increasingly turn to the United States for their education. For practical as well as humanitarian reasons we must do our best to provide education in optometry for those students. This is an additional reason why our profession needs to expand in trained manpower, so that we can provide education for our own people and those who come to us from other lands.

Incidentally, some of those students, once they have graduated from an American school, elect to stay and practice optometry in this country. Naturally, in view of our shortage of trained manpower we are delighted to have them stay, although we feel a little guilty about keeping them from their own people who also desperately need their services.

However, we would feel no guilt about Cuban refugee optometrists who elect to study and then practice here. Currently, with the help of the Department of

Health, Education, and Welfare, there are about a dozen Cubans studying optometry at our schools in this country, and I might add that their scholastic standing, despite language difficulties, is high. These refugees from Castroland are needed, and excellent additions, therefore, to our trained manpower pool.

In conclusion it is estimated that with—

1. The existing severe shortage of licensed optometrists;
2. The normal attrition rate of about 3 percent per year among practicing optometrists;
3. The expanding U.S. population and the increase in longevity; and
4. The increasing demand for optometrists in industry, research, and Government service—

the minimum of 1,000 graduates annually is a most conservative one. The need is there, the supply of qualified students is readily available. To meet our country's requirements for optometrists, support for expansion of facilities is needed, and support by way of financial aid to students is a necessity with the long and arduous training program that optometric students must complete.

Thank you.

APPENDIX

Accredited schools and colleges of optometry in the United States, their deans, and year organized

Name and address of school ¹	Name of dean	Year organized
School of Optometry, University of California, Berkeley, Calif.	Meredith W. Morgan, Ph.D.....	1923.
University of Houston, College of Optometry, Cullen Blvd, Houston, Tex.	Chester H. Pfeiffer, Ph.D., O.D.....	1952.
Illinois College of Optometry, 3421 South Michigan Ave., Chicago, Ill.	Alfred A. Rosenbloom, Jr., O.D.....	1872.
Indiana University, Division of Optometry, Bloomington, Ind.	H. W. Hofstetter, Ph.D., Director....	1951.
Los Angeles College of Optometry, 950 West Jefferson Blvd., Los Angeles, Calif.	Charles A. Abel, O.D.....	1904.
Massachusetts College of Optometry, 178 Newbury St., Boston, Mass.	Ralph A. Green, O.D.....	1894.
The Ohio State University School of Optometry, Columbus, Ohio.	Glenn A. Fry, Ph.D., Director.....	1914.
Pacific University, College of Optometry, Forest Grove, Oreg.	James F. Wahl, O.D.....	1945.
The Pennsylvania State College of Optometry, 6100 North 12th St., Philadelphia, Pa.	Lawrence Fitch, O.D.....	1919.
Southern College of Optometry, Memphis, Tenn....	Spurgeon B. Eure, O.D.....	1932.

¹ All of the above schools and colleges of optometry are accredited by the Council on Optometric Education, the official accrediting agency of the AOA recognized by the National Commission on Accrediting.

Dr. HEATH. I am serving as president of the Association of Schools and Colleges of Optometry. At the same time, I am a professor of optometry at Indiana University. Indiana University's Division of Optometry is 1 of only 10 schools of optometry in the United States. These 10 schools are charged with the responsibility of providing the optometric education for the practitioners who will provide about 70 percent or more of the vision care of the American public. This is a big responsibility.

With the advances in optometric science of recent years, the curriculum has become so full that it has necessitated increasing the length and the depth of the courses to the point where four of the schools presently have had to extend their curriculum to an additional year, making a total of 6 years of college training to accomplish their optometric education.

Now, this includes 2 years of preoptometry. These are general college subjects in mathematics and science courses. And then 4 years of professional courses following that.

Up to this point a 5-year curriculum—2 years preoptometry, 3 years of professional courses—has been the standard.

This increased length of training, and mostly training, of course, poses an additional burden for the student who is contemplating a career in optometry. With these long 5-year programs, very full 5-year programs that we have had, most students have found it completely impossible to do enough part-time work to support themselves while in college.

Our students in a recent study, a study actually being conducted at the present time by the Association of Schools and Colleges and not quite complete, on instructional hours, shows that in many of our schools the students are carrying the equivalent of 21 semester hours of work while the normal college load for a full-time student is 15 semester hours. So it is this sort of thing that has provided the pressure resulting in the increased length of the program.

I should also point out that with 2 years of preoptometry, it is possible to complete an optometric education in 5 or, in the case of some of the schools, 6 years, but over half of the students entering optometry schools have already completed more than 2 years of preoptometric studies, and nearly a third of these entering students already have bachelor's degrees. So they have had 4 years at least of college training before embarking on the additional heavy 3 or 4 years of professional studies in the optometry program.

Now, the student and the school have a load to carry in addition to this heavy curriculum, and that is the financial burden of putting the student through the school. The cost of training an optometry student to the school averages about \$2,200 a year judging from estimates received from all of the schools. This is not very far from what it takes to educate any student in a discipline requiring laboratory instruction. If it is lower than that in some other fields, this is undoubtedly due to forced economies and restricted funds, which is not always a good basis on which to attempt to give the highest caliber training. It is often an indication that salary scales for faculty and staff are undesirably low and that available equipment is in short supply, and so on. So these are not good economies if we strike very much below this average cost.

So far as the student is concerned, the tuition charges at these schools range from about \$850 to \$1,250 per year. So from this we can say that the student pays about half the cost of his instruction, and the rest must be supplied by the schools.

These funds come in part from the income of the optometry training clinics which are maintained at each of the schools as part of their instructional program. Other funds are available from alumni organizations, and in the case of the State universities, of course, there are tax funds, and, also, those schools receive part of the license fees of all the optometrists registered in those States each year.

The heavy course load, as I have pointed out, makes it impossible in general for the optometry students to earn enough or to provide from their own resources for their lengthy optometric training, and consequently, a great number of them have to turn to loans in order to see their way through their total program.

Most of the schools have small loan fund programs. Oftentimes these funds have been supplied by alumni organizations or by local

service groups such as the Lions Club in some cases, but these are small. They are used primarily for acute emergencies. Scholarships are limited in number and limited in amount. They amount to something like \$50 to \$400 a year as a general rule. The National Defense Education Act, the student loan program in that act, has been inadequate at virtually all of the optometry schools. It has given first choice to student education in languages, et cetera, and, of course, the National Defense Education Act was designed to help primarily the undergraduates who intended to become teachers.

For our purposes, since the cost of optometric education to the student is high, the National Defense Education Act's loan ceiling is not high enough and the repayment provisions are not adequate for our purposes. They have no forgiveness features such as are contained in the Health Profession's Educational Assistance Act for doctors who set up in practice areas which are deficient or critically short of health personnel.

Another feature is that this latter act, the Health Profession's Education Assistance Act, is also operated by the health profession's schools, and optometry's exclusion from it, therefore, is a most undesirable disadvantage in our recruitment program. The need, as has been emphasized and will be repeatedly emphasized, for optometrists is critical. There are about 21,000 licensed optometrists but really only about 17,000 of these can be considered to be available for the health care, for the visual care of the American public. This is a ratio of about 1 optometrist to 11,250, while for a minimum of good visual care, a ratio of 1 in 7,000 is considered to be barely adequate.

To put it another way, a nation of 200 million people needs a minimum of 30,000 optometrists to care for its vision needs. This is a conservative figure. Yet to reach it, we will have to graduate a thousand new optometrists a year. At the present time we are not graduating half that number. This last year we had enrollment in the optometry schools of slightly over 550 new students. This is up nearly 200 students since 1958 when we hit the acute postwar lull. But at this present time, lack of funds and lack of space and facilities at the schools are going to increase the number of rejectees that will be necessary in order simply to handle the increased student load.

Next year the problem will be even more acute unless the schools can expand their facilities.

Meanwhile, American optometry, limited in number and funds as it is, is increasingly becoming the instructor to the world. Students from all the continents in the world are coming to the United States for optometric education. Some stay here and practice. We are glad to have them. They increase our number, and they are needed. We are particularly glad that among these foreign students there are about a dozen Cuban refugee optometrists who are presently studying in the schools with the assistance of the Department of Health, Education, and Welfare. These foreign students are doing very well academically in spite of their language difficulties. They are needed. They are excellent additions to our training manpower pool.

Now, in summing up, just let me say that the need for additional manpower is really acute. The supply of qualified students now as a result of recruitment programs is readily available to meet our requirements for optometrists, our Nation's supply of trained practitioners.

Support for expansion of optometry schools and facilities is desperately needed, and support by way of financial aid for students is a necessity in view of the long and arduous program that optometry students must complete.

Thank you.

Mr. ROGERS of Florida. Thank you very much, Dr. Heath.

Dr. HEATH. I do have, Mr. Chairman, catalogs of the 10 schools of optometry in this country which spell out the curriculum of each. I would like to give these to the committee for—

Mr. ROGERS of Florida. We will be glad to have them and make them a part of our committee file.

Congressman Pickle, would you like to introduce our next witness?

Mr. PICKLE. Yes, I would, Mr. Chairman, and thank you for the privilege.

This is almost like old-home week, Mr. Chairman, because the situation easily could be reversed. You could be presenting me today to this group because optometry is very close to my heart. A few years ago I served as the executive secretary for the Texas Optometric Association and served in that capacity for about 4 or 5 years until they moved me on to other pastures.

It was my privilege then to work closely with every member of the Texas Optometric Association, and in that capacity I traveled over the State of Texas into almost every county, visiting in each of the doctors of optometry's offices, learning to know them personally and understanding something about their problems.

This is a great profession and doing tremendous work for the people of the United States in the field of vision. This group deserves support, not only because of the merits of this bill, in my opinion, but in addition I hope that the States themselves will set up more schools. It is wrong that we only have 10 schools of optometry in the country now. This number must be doubled, I would think, or tripled, and this is partially the responsibility of the States. I hope my own State takes more leadership in this field than they are doing.

I was pleased to notice over the years that optometrists have come a long way. Some part of our population still thinks in terms of being in the back of a jewelry store. That day went out with the horse and buggy. That is no more the situation than anything. In Texas I visited offices where an optometrist is in one part of a new stone or brick building, shared by a dentist on one hand, or shared by an M.D. on the other. There is close liaison between the Texas Optometric Association and the Texas Medical Association, and they are learning to work closely together as they should because the two fields are not overlapping in any respect, and I am glad of that development.

While I served as executive secretary, I made many good friends. One of them is here today, Dr. Nelson Waldman is the new president-elect of the Texas Optometric Association. I have served with him on the board of directors. I listened to him give me some strong instructions at times, and I have given a little advice here and there. We have taken some of the slings, the barbs, and arrows, and some of the credit for the progress made in Texas. I have shared a lot of these experiences and one of the finest men in our State is Nelson Waldman who has been a leader in the optometric field. He is my personal friend, and I am delighted to present him to this group here today.

Dr. Waldman.

Mr. ROGERS of Florida. Thank you very much, Congressman Pickle.

Dr. Waldman, before you begin, I think you should know that the committee receives you with great affection after all of this very fine introduction from our good and close colleague here from Texas whom this committee regards most highly.

STATEMENT OF DR. NELSON F. WALDMAN, O.D., CHAIRMAN, COMMITTEE ON VOCATIONAL GUIDANCE, AMERICAN OPTOMETRIC ASSOCIATION

Dr. WALDMAN. Thank you very much. I was unprepared for such a reception. However, if it were possible, I could take much more time than what I am allotted here this morning to tell you some very wonderful and very, very flattering things about Congressman Pickle who, as he indicated, served as our executive secretary in Texas for several years.

Frankly, I think that you people here in Washington are very fortunate to have him.

Mr. ROGERS of Florida. We agree with you 100 percent.

Dr. WALDMAN. I think he will be a tremendous asset to all of you and all of us serving here in Washington. I hope you take advantage of him.

Mr. Chairman, I, too, will attempt to summarize the statement that has been presented to you.

Mr. ROGERS of Florida. That will be fine. Your full statement will be made a part of the record at this point without objection.
(Dr. Waldman's statement in full follows:)

STATEMENT OF NELSON F. WALDMAN, O.D.

Mr. Chairman and members of the committee, thank you for the privilege given me today to speak in favor of legislation which can do so much to aid the visual welfare of our Nation.

I am Dr. Nelson Waldman, practicing optometry in Houston, Tex. I am chairman of the American Optometric Association's Committee on Vocational Guidance and president-elect of the Texas Optometric Association.

The American Optometric Association has done a great deal of research in an effort to determine the current and future needs of optometrists in the United States and the prospects for meeting these needs. We have studied ways and means of attracting intelligent young men and women and have devised a program to assist in eliminating the shortage of optometrists which will otherwise become a problem of serious consequences for this great country.

The services of optometrists are essential to the health and well-being of the American people; the missions of the U.S. armed services and of civilian space and other scientific endeavors; the production of vital military and related equipment and materials needed for national defense; and to the development of skills and the improvement of educational techniques among students and workers. However, as the demand for optometric services has expanded—both in civilian and military life—the number of optometrists has not been keeping pace, and has, in fact, been declining. Thus, it is imperative that every effort be made to emphasize the need for and the shortage of, men and women trained in this vital professional specialty.

Optometrists devote 5, 6, or more years to college or university education to the purpose that at the conclusion of such education they can make a conscientious measurement of refraction and visual acuity and apply their acquired knowledge to increase the visual performance of both young and old who seek their professional services.

Optometrists fill a public health need which can be met from no other source than by utilization of their services. They presently supply two-thirds of all the vision care to the general public of the United States, and in the Armed Forces this percentage is close to 85 percent.

Optometry is the only profession specifically licensed in all of the 50 States, the District of Columbia, and the outlying possessions of the United States to deal with refractive and visual anomalies. Optometry exists only because the public reposes trust in it to fill its visual needs, and compensates optometrists for doing so.

Most Americans requiring vision care are dependent upon the availability of members of our profession. In addition, most of the preventive work in the field of vision care—periodic examinations for evidences of vision difficulties relating to such near-point vision tasks as reading or eye-hand coordination—is performed by optometrists in the home community. While medical practitioners also frequently provide such services, the number of medical doctors trained in this specialty is approximately one-sixth as large as the admittedly limited number of optometrists.

Results of the 1960 Census of Population show 16,044 optometrists practicing in the United States. This was a gain over the 1950 census of 9.6 percent. The same census revealed a gain in the same period for dentists of 10.1 percent and for physicians and surgeons of 18.9 percent.

Our latest tabulation for May 1964 shows there are some 17,000 optometrists in practice. As of 8 a.m., May 21, 1964, the Bureau of Census, Department of Commerce, reports that the U.S. population is 191,741,430. In round figures, then, we have a ratio of 1 optometrist to every 11,250 Americans.

Since most Americans—including those in the armed service—are dependent primarily upon members of the optometric profession for most of their vision care requirements (or for referral, when indicated, to physicians for medical attention), the question is whether there are sufficient licensed optometrists to meet the needs of this country.

The data we have establishes that there is a pronounced and serious shortage in our profession, and that this shortage, under the present conditions of college enrollment, and vigorous competition with the health and other sciences, will get increasingly worse before it will be improved.

The facts are these:

1. More practitioners are leaving the field (through death and retirement) than are entering it.

2. The number of students enrolled in colleges of optometry has fallen off drastically since the high point of post-World War II GI bill enrollments. However, there has been a steady, but all too slow growth since 1958.

3. According to a recent, professionwide survey, less than 7 percent of the practicing optometrists in this country are under the age of 29, while about half of all optometrists are over 38.

The following figures are based on a 1959 survey made by the American Optometric Association, on which there was a 45-percent response to the questionnaire. This study, providing the best information currently available on the characteristics of the profession, showed that—

	<i>Percent</i>
Were then under 29.....	7
Were then between 29 and 38.....	44
Were then between 39 and 48.....	30
Were then between 49 and 58.....	12
Were then between 59 and 68.....	5
Were then 69 or older (of which 3/10 of 1 percent were still practicing at 90 or older).....	2

4. The accepted minimum ratio of optometrists to population has been determined to be one practitioner to each 7,000 persons. The actual ratio, however, is now of one optometrist to each 11,250 persons. At the current level in 1964, then, we have a present shortage of 10,000 optometrists needed to provide the barest minimal vision needs of our population.

Since it requires at least 5, and usually 6, years of college-level training to prepare an optometrist for general practice, and since college enrollments have not kept pace with the attrition rate in the profession, the present unfavorable ratio of optometrists to population will worsen, if the trend is not reversed quickly.

The shortage of optometrists is much more serious in some States than in others, but is acute in all States. There are 45 counties in Kentucky, according to a report by that State's Governor, which are without a single full-time optometrist. But even in States where the ratio is more favorable than in others, patients must schedule their appointments far in advance, and often wait an

inordinate length of time for examinations. This problem, common to medicine, dentistry, and osteopathy, is equally true in optometry.

States with the highest percentage of population per optometrist are generally those States with the highest Negro or Spanish-American population. They are also generally the States with the lowest per capita income. Applicants desiring to enter the study of optometry from these States are those most in need of financial assistance to pay the costs of their education.

The Midwestern States are usually considered to be as self-sufficient as any group of States in our Nation. It is significant, therefore, to study the following table taken from the Optometric World, a privately published magazine, which appeared in that magazine's December 1963 issue.

The scope of the study was limited to 10 States and was to find those counties having 10,000 or more population per optometrist. Note that all counties having no optometrists are included regardless of population.

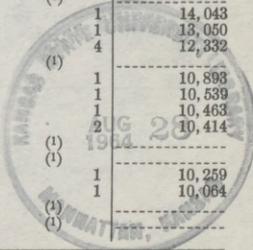
Population per optometrist

ARKANSAS

County	1960 population	Optometrists	Population per optometrist
Lonoke.....	24,551	(1)	
Crawford.....	21,318	1	21,318
Desha.....	20,770	1	20,770
Poinsett.....	30,834	2	15,417
Saline.....	28,956	2	14,478
Lincoln.....	14,447	1	14,447
Mississippi.....	70,174	5	14,035
Bradley.....	14,029	1	14,029
Jefferson.....	81,373	6	13,562
Pulaski.....	242,980	18	13,499
Columbia.....	26,400	2	13,200
Randolph.....	12,520	1	12,520
Ashley.....	24,220	2	12,110
Yell.....	11,940	(1)	
Jackson.....	22,843	2	11,421
Clay.....	21,258	2	10,629
Ouachita.....	31,641	3	10,547
Dallas.....	10,522	1	10,522
Prairie.....	10,515	(1)	
Franklin.....	10,213	(1)	
Independence.....	20,048	2	10,024
Cleburne.....	9,059	(1)	
Grant.....	8,294	(1)	
Searcy.....	8,124	(1)	

IOWA

Buena Vista.....	21,189	1	21,189
Pottawatomie.....	83,102	4	20,775
Dubuque.....	80,048	4	20,012
Cedar.....	17,791	1	17,791
Jasper.....	35,282	2	17,641
Butler.....	17,467	(1)	
Muscatine.....	33,840	2	16,920
Iowa.....	16,396	1	16,396
Chickasaw.....	15,034	1	15,034
Hancock.....	14,604	1	14,604
Lyon.....	14,468	1	14,468
Grundy.....	14,132	(1)	
Mitchell.....	14,043	1	14,043
Mills.....	13,050	1	13,050
Story.....	49,327	4	12,332
Audubon.....	10,919	(1)	
Adair.....	10,893	1	10,893
Decatur.....	10,539	1	10,539
Monroe.....	10,463	1	10,463
Warren.....	20,829	2	10,414
Louisa.....	10,290	(1)	
Fremont.....	10,282	(1)	
Worth.....	10,259	1	10,259
Osceola.....	10,064	1	10,064
Wayne.....	9,800	(1)	
Van Buren.....	9,788	(1)	



LOANS TO STUDENTS OF OPTOMETRY

Population per optometrist—Continued

KANSAS

County	1960 population	Optometrists	Population per optometrist
Johnson.....	143,792	5	28,758
Wyandotte.....	185,495	10	18,549
Leavenworth.....	48,524	3	16,175
Rice.....	13,909	1	13,909
Harvey.....	25,865	2	12,932
Nemaha.....	12,897	1	12,897
Osage.....	12,886	1	12,886
Sedgwick.....	343,231	30	11,441
Greenwood.....	11,253	1	11,253
Jefferson.....	11,252	(1)	-----
Cherokee.....	22,279	2	11,139
Washington.....	10,739	1	10,739
Jackson.....	10,309	1	10,309
Pawnee.....	10,254	1	10,254
Doniphan.....	9,574	(1)	-----
Barton.....	32,368	4	8,062

LOUISIANA

Vermilion.....	38,555	1	38,555
Iberville.....	29,939	1	29,939
St. Martin.....	29,063	1	29,063
Bossier.....	57,622	2	28,811
Lafourche.....	55,381	2	27,690
Livingston.....	26,974	1	26,974
Jefferson.....	208,769	8	26,096
Richland.....	23,824	(1)	-----
Plaquemines.....	22,545	1	22,545
Pointe Coupee.....	22,488	1	22,488
St. Charles.....	21,219	1	21,219
East Feliciana.....	20,198	(1)	-----
Sabine.....	18,564	(1)	-----
St. John the Baptist.....	18,439	(1)	-----
St. James.....	18,369	(1)	-----
Vernon.....	18,301	1	18,301
Assumption.....	17,991	(1)	-----
Natchitoches.....	36,653	2	17,826
Union.....	17,624	1	17,624
Morehouse.....	33,709	2	16,854
Bienville.....	16,726	1	16,726
St. Mary.....	48,833	3	16,277
St. Bernard.....	32,186	2	16,093
Rapides.....	111,351	7	15,907
Terrebonne.....	60,771	4	15,193
West Baton Rouge.....	14,796	(1)	-----
Lincoln.....	28,535	2	14,267
West Carroll.....	14,177	1	14,177
Lafayette.....	84,656	6	14,109
Ascension.....	27,927	2	13,963
Grant.....	13,330	(1)	-----
Iberia.....	51,697	4	12,914
Avoyelles.....	37,606	3	12,535
Acadia.....	49,931	4	12,483
West Feliciana.....	12,395	(1)	-----
Tangipahoa.....	59,434	5	11,887
St. Landry.....	81,493	8	11,642
East Baton Rouge.....	230,058	20	11,503
Catahoula.....	11,421	(1)	-----
Ouachita.....	101,663	9	11,296
Caddo.....	223,859	20	11,192
Washington.....	44,015	4	11,004
Red River.....	9,978	(1)	-----
St. Helena.....	9,163	(1)	-----

Population per optometrist—Continued

MINNESOTA

County	1960 population	Optometrists	Population per optometrist
Anoka.....	85,916	3	28,638
Nicollet.....	23,196	1	23,196
Scott.....	21,909	1	21,909
Washington.....	54,432	3	17,477
Benton.....	17,287	(1)	-----
Cass.....	16,720	1	16,720
Goodhue.....	33,035	2	16,512
Sibley.....	16,288	1	16,288
Dakota.....	78,303	5	15,661
Yellow Medicine.....	15,523	1	15,523
Wright.....	29,935	2	14,967
Murray.....	14,743	1	14,743
Watonwan.....	14,460	1	14,460
Marshall.....	14,262	1	14,262
Chisago.....	13,419	1	13,419
Lac Qui Parle.....	13,330	1	13,330
Morrison.....	26,641	2	13,320
Dodge.....	13,259	(1)	-----
Sherburne.....	12,861	(1)	-----
Aitken.....	12,162	1	12,162
Roseau.....	12,154	1	12,154
Renville.....	23,249	2	11,624
Stevens.....	11,262	1	11,262
Wilkin.....	10,650	1	10,650
Lincoln.....	9,651	(1)	-----

MISSOURI

Pulaski.....	46,567	1	46,567
Pemiscott.....	38,095	1	38,095
New Madrid.....	31,350	(1)	-----
Platte.....	23,350	(1)	-----
Lawrence.....	23,260	1	23,260
Texas.....	17,758	1	17,758
St. Charles.....	52,970	3	17,657
Pike.....	16,706	1	16,706
Monroe.....	15,507	1	15,507
Newton.....	30,093	2	15,047
Cass.....	29,702	2	14,851
Clay.....	87,474	6	14,579
Washington.....	14,346	1	14,346
Wright.....	14,183	1	14,183
Carroll.....	13,847	1	13,847
Webster.....	13,753	1	13,753
Chariton.....	12,720	(1)	-----
Christian.....	12,359	1	12,359
Grundy.....	12,220	1	12,220
Ste. Genevieve.....	12,116	1	12,116
Callaway.....	23,858	2	11,929
McDonald.....	11,798	1	11,798
Montgomery.....	11,097	1	11,097
Andrew.....	11,062	1	11,062
Osage.....	10,867	(1)	-----
Howard.....	10,859	1	10,859
Monroe.....	10,688	(1)	-----
Monteau.....	10,500	1	10,500
Mississippi.....	20,695	2	10,347
Taney.....	10,238	1	10,238
Bollinger.....	9,167	(1)	-----
Sullivan.....	8,783	(1)	-----
Clark.....	8,725	(1)	-----
Wayne.....	8,638	(1)	-----
Caldwell.....	8,330	(1)	-----
Ralls.....	8,078	(1)	-----
Iron.....	8,041	-----	-----

LOANS TO STUDENTS OF OPTOMETRY

Population per optometrist—Continued

NEBRASKA

County	1960 population	Optometrists	Population per optometrist
Sarpy.....	31,281	(1)	-----
Cass.....	17,821	1	17,821
Saunders.....	17,270	1	17,270
Cedar.....	13,368	1	13,368
Red Willow.....	12,940	1	12,940
Dakota.....	12,168	1	12,168
Burt.....	10,192	1	10,192
Bntler.....	10,312	1	10,312
Fillmore.....	9,425	(1)	-----
Clay.....	8,717	(1)	-----
Dixon.....	8,106	(1)	-----

NORTH DAKOTA

Steele.....	25,137	1	25,137
McLean.....	14,030	(1)	-----
Polk.....	36,182	3	12,060
Norman.....	11,253	1	11,253
Rolette.....	10,641	1	10,641
McHenry.....	11,099	(1)	-----
Trail.....	10,583	(1)	-----
Morton.....	20,992	2	10,496
Cavalier.....	10,064	1	10,064
Mountrail.....	10,007	1	10,007
Benson.....	9,435	(1)	-----
La Moure.....	8,705	(1)	-----

OKLAHOMA

Washita.....	18,121	1	18,121
Sequoyah.....	18,001	1	18,001
Cherokee.....	17,762	1	17,762
Craig.....	16,303	1	16,303
Osage.....	32,441	2	16,220
Wagoner.....	15,673	1	15,673
Comanche.....	90,803	6	15,134
Le Flore.....	29,106	2	14,553
Ottawa.....	28,301	2	14,150
Delaware.....	13,198	1	13,198
Adair.....	13,112	1	13,112
McIntosh.....	12,371	(1)	-----
Canadian.....	24,727	2	12,363
Blaine.....	12,077	1	12,077
Okfuskee.....	11,706	(1)	-----
Payne.....	44,231	4	11,058
Nowata.....	10,848	1	10,848
Kingfisher.....	10,635	1	10,635
Murray.....	10,622	1	10,622
Noble.....	10,376	1	10,376
Atoka.....	10,352	1	10,352
Rogers.....	20,641	2	10,320
Creek.....	40,495	4	10,124
Mayes.....	20,073	2	10,036
Jefferson.....	8,192	(1)	-----
Grant.....	8,140	(1)	-----

SOUTH DAKOTA

Roberts.....	13,190	1	13,190
Meade.....	12,044	1	12,044
Spink.....	11,706	1	11,706
Turner.....	11,159	1	11,159
Hutchinson.....	11,085	(1)	-----
Union.....	10,197	(1)	-----
Bon Homme.....	9,229	(1)	-----
Kingsbury.....	9,227	(1)	-----

1 None.

5. The armed services come first in obtaining the services of optometric graduates, and—thanks to the vigorous recruiting efforts of the services, and of the patriotic response of our graduates—the military services in recent years have been able to fill all of their spaces for commissioned optometrists. Without greater success in attracting capable, scientifically oriented young people into the profession, however, it will be increasingly difficult in coming years—and it is very difficult now—to find the optometric manpower the armed services desperately need for professional care of military personnel and their families; and the recruitment of optometrists into the armed services in recent years in the number required has been at the expense of further imbalance in vision care services for the civilian population, including activities essential to national security.

6. The fact that the population has doubled in the last 50 years and will reach 200 million by 1970 is significant. During 1950–60 the number of people 65 years and older increased by 35 percent. There was a fivefold increase from 1900 to 1960. The prediction is made by the University of Chicago (University of Chicago reports, XII (November 1961)) that by 1980 the number of persons 65–69 will exceed 8.5 million while those over 70 will number almost 16 million. This would be nearly a 50-percent increase in the older population in the next 20 years.

The Better Vision Institute, following a canvas of 1,082 family units, including 3,354 persons, reported the following:

Age:	Wear glasses (percent)	Age—Continued	Wear glasses (percent)
5 to 14.....	22.0	45 to 64.....	89.1
15 to 24.....	51.0	65 and over.....	100.0
25 to 44.....	64.6		

Thus it becomes increasingly more urgent that the profession of optometry be included in the list of health specialists receiving Federal loans for their students. Because in the competition among all sciences requiring extensive college preparation, and particularly in the health professions, omission from the law implies to the student that the profession is already adequately staffed, if not actually overcrowded.

The American Optometric Association is making a determined effort to attract suitable young men and women into this profession. But we are handicapped by the fact that the Government of the United States does not include this profession among those disciplines urgently in need of additional manpower for essential civilian needs and national security.

Since the purpose of the Health Professions Educational Assistance Act was to benefit the people by making available qualified graduates in the health fields, I would like to call your attention to a 1961 study of health care needs in Texas published by the Texas Research League which points out that the two greatest unmet health care needs in my State are in the fields of dental care and vision care.

In an effort to meet the need, the Texas Optometric Association several years ago contributed out of their own pockets in excess of \$100,000 to establish a college of optometry at the University of Houston. This college is now receiving an additional \$15,000 to \$20,000 a year from Texas optometrists in an effort to assure the citizens of Texas and the South a greater number of qualified optometric graduates.

Five Dixie States have voted legislation to provide scholarships for home-State students to study optometry. They are Florida, South Carolina, Georgia, Kentucky, and Texas.

In the past 2 years in the Southern States, 7 had gains of optometrists totaling 60, 1 stood still, and 3 had losses totaling 15. Despite modest gains—and the South fared better percentage-wise than the Nation as a whole, this is short-lived comfort when one realizes that the South has much further to go than other sections in order to obtain the proper ratio of population per optometrist.

In spite of all our efforts at every level, National, State, and local, our gains are too few to warrant overlooking any opportunity to increase them. We are proud, however, to report that our student enrollment is growing in spite of the obstacles and handicaps which face us.

LOANS TO STUDENTS OF OPTOMETRY

Student enrollment, 1961, 1962, and 1963

	U of C	MCO	PSCO	U of H	LA	OSU	SCO	IU	ICO	PU	Total
Freshmen:											
1961.....	33	29	53	37	42	29	67	22	79	47	438
1962.....	30	36	39	38	43	47	89	30	105	40	497
1963.....	35	33	68	43	46	37	103	31	76	38	550
Undergraduates:											
1961.....	79	121	164	107	121	73	211	54	191	183	1,304
1962.....	69	120	134	109	117	103	234	70	208	130	1,294
1963.....	108	128	169	116	113	101	232	77	212	252	1,508
Graduates:											
1961.....	6	0	0	6	0	3	0	17	6	4	42
1962.....	23	0	30	6	0	2	0	16	3	4	84
1963.....	6	20	0	10	0	0	0	15	3	2	56
Total:											
1961.....	85	121	164	113	121	76	211	71	197	187	1,387
1962.....	92	120	164	115	117	105	234	86	211	134	1,378
1963.....	116	148	169	126	113	101	232	92	215	254	1,566

An increase in quantity of students is not enough if there is deterioration in the quality of the accepted applicant. The best index we can provide has been given to us by Dr. Henry Hofstetter, director of the Division of Optometry, Indiana University. Deans at our other schools and colleges report comparable results. Of the several criteria which might be used for comparison purposes, he chose "rank in the high school graduating class," a rating which pertains to the applicant's performance at least 2 years prior to his entering the division of optometry. Approximately 85 percent of the applicants show the student's rank and the size of his class. For statistical purposes he converted the ratio of rank to class size into a percentile equivalent, that is the equivalent rank in a class of 100. Thus, the valedictorian of a class of 20 gets an equivalent rank of 5; the rank of 16th in a class of 200 gets the equivalent rank of 8; etc. Accordingly, the results are as follows:

Year of admission to division of optometry.....	1960	1961	1962	1963
Year of graduation.....	1963	1964	1965	1966
Total number in class.....	18	19	27	30
Number with records showing high school rank.....	16	15	23	26
Average (mean) high school rank per 100.....	34.8	21.8	27.5	20.4
Median high school rank per 100.....	32.3	18.6	16.6	18.0

This was an improvement in quality of entering students who in the past 3 years have moved up from the first third of their high school classes to the first fifth. In one sense it represents an advance of more than 33½ percent in rank.

The results indicate substantial improvement in quality during the 4-year period. I should add that the high school rank rarely influences the optometric admissions committee, as the committee is guided primarily by the performance in preoptometry college-level courses. This gives even greater validity to the high school rank as an index of trend in quality.

In 1959 the American Optometric Association, recognizing that the situation was becoming exceedingly critical, declared that student recruitment was its No. 1 project. This declaration was repeated in each subsequent year. In 1960 the AOA Vocational Guidance Committee created and implemented a 5-year program called "Operation Manpower" designed as a blueprint for the recruitment of qualified students.

All segments of optometry—the OAO, the doctors, the schools, and the manufacturers and suppliers of ophthalmic goods are cooperating in a hard-hitting program of career guidance and information. Each month we mail out "The Recruiter" a bulletin which enlists everyone's support in "Operation Manpower." I am providing a copy of the May 1964 issue for this committee's records.

Leading members of the ophthalmic industry have recognized the importance of this program and are giving it their full support.

"Operation Manpower" is reaching prospective students at every level; through their schools, their vocational counselors, their parents, their optometrists, their health and religious leaders, their clubs and organizations. "Operation Man-

power' is using every modern means of communication—the written word, literature, books, word of mouth, exhibits, speeches, radio, television, billboards, motion pictures, magazine and newspaper stories, etc. This is a dynamic program of action.

But many qualified prospects who apply find it financially impossible to enter optometry schools. Some who enter are forced to drop out, usually during or after the freshman year. We have been exploring every possibility for loan plans and scholarships and a number have been made available by various associations, societies, and institutions which are listed in this booklet I am giving the committee. Its title is "Scholarships in Optometry, 1964-65." Unfortunately, because of the magnitude of the problem with which we are faced, all of our efforts fall far short of meeting the need.

For the many reasons just stated, it is imperative for the future visual health and welfare of the people of the United States that optometry students be granted the same loan opportunities as our sister professions of dentistry, medicine, and osteopathy by passage of H.R. 8546.

A favorable report by the committee on this legislation will be greatly appreciated. Thank you for your kind attention to my comments.

WHAT IS AN OPTOMETRIST?

EDUCATIONAL BACKGROUND AND SERVICE RENDERED BY THE OPTOMETRIST

Your optometrist specializes in the examination of the eyes for the conservation and improvement of vision. He makes a complete vision analysis, administering a series of tests to determine the efficiency of your eyes for both distance and near point vision. If deficiencies are found, he prescribes and provides any lenses, visual training, or specialized services needed in order to achieve accurate, comfortable, and efficient seeing. The optometrist also has extensive training in the detection and recognition of diseases in the eye. When evidence of pathology is present, he refers the patient for other professional care.

Optometry is the art and science of vision care.

The optometrist's comprehensive training in vision care includes the study of these vital subjects:

OCULAR ANATOMY

Through his study of ocular anatomy, the optometrist has acquired knowledge of the structure of the eye. His thorough understanding of the complex system of the eye is basic to his comprehensive professional studies.

OCULAR PATHOLOGY

Through his study of ocular pathology, the optometrist has acquired knowledge to recognize diseases in the eye. He has become familiar not only with deficiencies and disease, but also with detection of their symptoms.

PHYSIOLOGY

Through his study of physiology, the optometrist has acquired knowledge of the normal bodily functions. He has become familiar with the effects of bodily malfunctions on vision and can recognize the symptoms of these.

MEASUREMENTS OF FIELDS OF VISION

Through his study of measurements of fields of vision, the optometrist has acquired the most advanced techniques and knowledge to measure restrictions in total area of vision or indications of actual or impending pathology.

CONTACT LENSES

Through his study of contact lenses, the optometrist has acquired the most advanced techniques and knowledge to properly fit modern plastic lenses upon the eye. He supplements his prescribing of conventional eyewear with contact lenses when advisable.

VISION FOR EDUCATION

Through his study of vision for education, the optometrist has acquired knowledge to safeguard the vision of our children and assist them in learning. By correcting visual problems, he can assist the child to improve his school achievement.

VISION FOR INDUSTRY

Through his study of vision for industry, the optometrist has gained knowledge to provide employees with vision efficiency for greater safety and productivity. He has been taught the effects of light and environment on specific tasks, and can prescribe effective improvements.

SUBNORMAL VISION

Through his study of subnormal vision, the optometrist has acquired the knowledge to aid the partially sighted. Through the use of telescopic spectacles and other means, useful sight can often be restored to patients with severe vision handicaps.

NEURAL ANATOMY AND PSYCHOLOGY OF VISION

Through his study of neural anatomy and psychology of vision, the optometrist has acquired knowledge of the mental processes involved in seeing. The brain plays an integral part in the total function of seeing.

PHYSICS AND MATHEMATICS

Through his study of physics and mathematics, the optometrist has acquired knowledge of light and the action of lenses and prisms on light. He has become familiar with the scientific use of lenses for producing varying visual effects.

PHYSIOLOGICAL OPTICS

Through his study of physiological optics, the optometrist has acquired knowledge of the function of the vision mechanism. He has become familiar with the intricate system of seeing and the uses of optics for improvement of functions.

GEOMETRICAL OPTICS

Through his study of geometrical optics, the optometrist has acquired a theoretical knowledge of lenses. He has become familiar with the mathematical calculations necessary in vision correction.

MECHANICAL OPTICS

Through his study of mechanical optics, the optometrist has acquired a practical knowledge of ophthalmic glass, lens grinding, adaptation and fitting. With this knowledge he ascertains that the prescription he writes is properly filled, and fits the eyewear to the patient's face.

THEORETICAL OPTOMETRY

Through his study of theoretical optometry, the optometrist has acquired knowledge of the principles of examination and refraction. He has been taught the elements of evaluating and correlating the results of tests to arrive at a proper optometric diagnosis.

PRACTICAL OPTOMETRY

Through his study of practical optometry, the optometrist has acquired the knowledge of procedures and techniques of examination, refraction and analysis. He has been taught methods for determining your vision status and the application of corrective measures, if necessary.

BACTERIOLOGY, BIOLOGY AND CHEMISTRY

Through his study of bacteriology, biology, and chemistry, the optometrist has acquired a knowledge of these extraneous factors and their effect on the

human system. He has been taught the chemistry of the body and its relationship to vision.

GENERAL PATHOLOGY

Through his study of general pathology, the optometrist has acquired the knowledge of the relationship of bodily disorders to vision. He has been taught the interrelationship of human organs in order to evaluate the possibility of more remote causes of vision deficiencies.

VISUAL TRAINING

Through his study of visual training, the optometrist has acquired the most advanced techniques and knowledge to prescribe best procedures for enhancing and developing vision skills and eye coordination.

Your optometrist, after receiving a minimum of 5 years specialized college training, has graduated from one of the 10 schools of optometry accredited by the Council on Optometric Education of the American Optometric Association.

The curriculums and standards of optometric colleges have been steadily augmented to keep pace with scientific advancement, and postgraduate instruction in the advanced techniques for vision care is available.

Each State and the District of Columbia requires the graduate optometrist to pass a State board examination to prove his skill and competence. He must renew his license annually to qualify as a vision specialist in that State.

Having thus established his qualifications, your optometrist can competently care for your complete vision needs and assure you of maximum efficient seeing. His knowledge applied to your individual vision requirements will further your enjoyment in living—in your work, in your study, and in your leisure activities.

Next to life itself, God's most precious gift to man is sight. To the care of this great gift of vision your optometrist sincerely and faithfully dedicates his service.

THE OPTOMETRIST'S EDUCATION

Not less than 5 years of specialized college education required—available at the finest colleges and universities.

Examination and certification for competence by the State board required in every State of the Union and the District of Columbia.

CODE OF ETHICS

It shall be the ideal, the resolve, and the duty of the members of the American Optometric Association:

To keep the visual welfare of the patient uppermost at all times;

To promote in every possible way, in collaboration with this association, better care of the visual needs of mankind;

To enhance, continuously, their educational and technical proficiency to the end that their patients shall receive the benefits of all acknowledged improvements in visual care;

To see that no person shall lack for visual care, regardless of his financial status;

To advise the patient whenever consultation with an optometric colleague or reference for other professional care seems advisable;

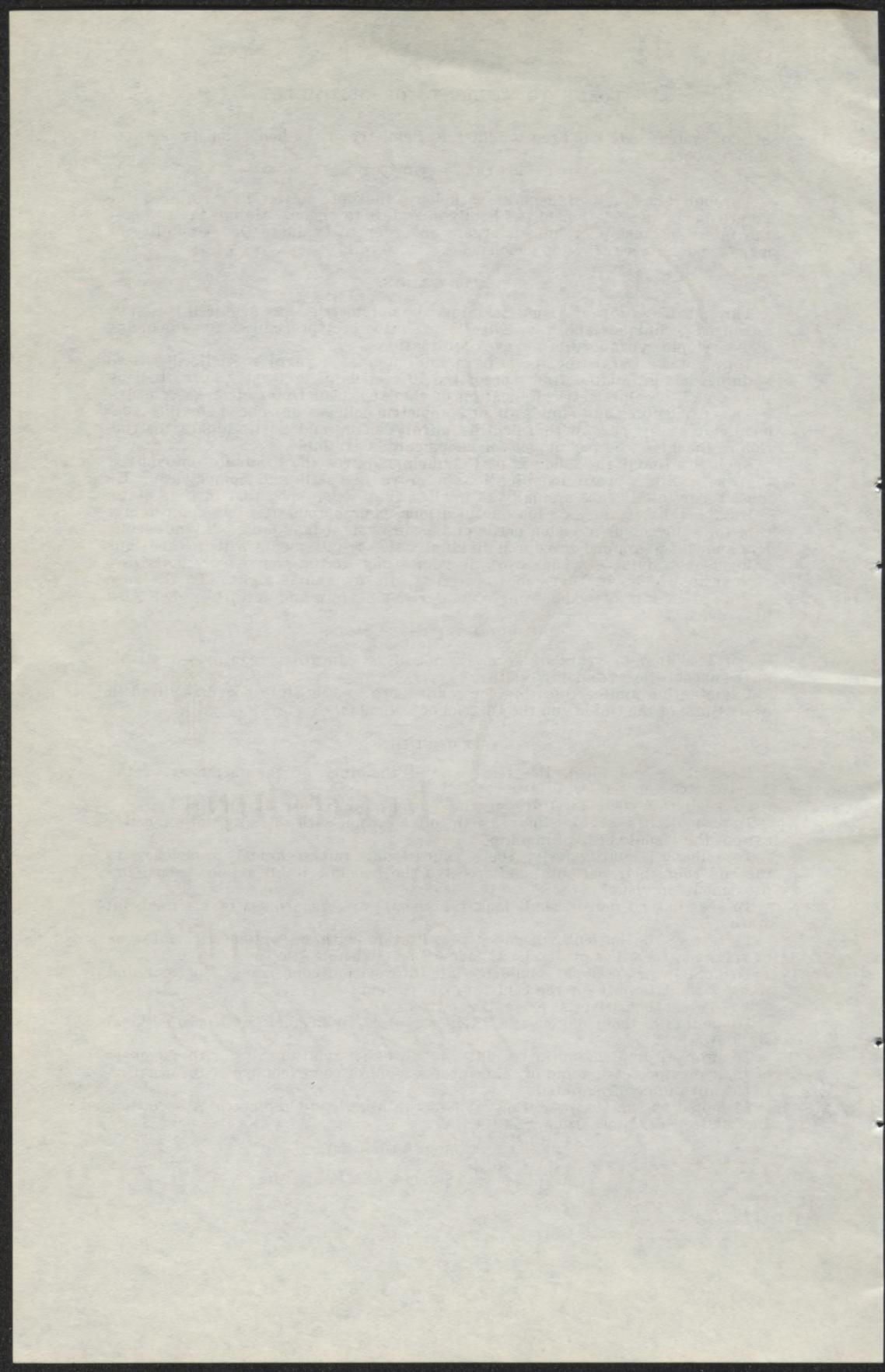
To hold in professional confidence all information concerning a patient and to use such data only for the benefit of the patient;

To conduct themselves as exemplary citizens;

To maintain their offices and their practices in keeping with professional standards;

To promote and maintain cordial and unselfish relationships with members of their own profession and of other professions for the exchange of information to the advantage of mankind.

(Adopted by the House of Delegates of the American Optometric Association, Inc., at Detroit, Mich., June 28, 1944.)





scholarships
in
Optometry
1964-1965

American Optometric Association, Inc.
4030 Chouteau Avenue • St. Louis, Mo.

FOREWORD

The A.O.A. Committee on Vocational Guidance gratefully acknowledges and expresses its appreciation to the various associations, societies, and institutions whose cooperation has made this compilation of optometric scholarships and loan funds possible.

Designed especially for use by optometrists and vocational guidance personnel in counseling young men and women seeking a future in the profession of optometry, this booklet represents the status of optometric scholarships and loan funds as of this date.

Any omissions or errors are unintentional and the Committee will welcome receiving any corrective information.

Nelson F. Waldman, O.D.
Chairman
Vocational Guidance Committee

April 30, 1964

STATE SCHOLARSHIPS

Some state governments have set up scholarship and loan funds for resident students to continue their higher education, either within the state, or out of state. It is suggested that a student write directly to the Department of Education, of the state he is a resident, to learn if the state offers scholarships.

**SCHOLARSHIPS AND LOAN FUNDS AVAILABLE
FROM AMERICAN OPTOMETRIC ASSOCIATION
STATE ASSOCIATIONS, STATE WOMEN'S
AUXILIARIES, AND OTHER ORGANIZATIONS**

ALABAMA

(Contact The Alabama Optometric Association, Department of Public Information, P.O. Box 441, Aliceville, Alabama.)

Scholarships**Alabama Optometric Association**

The Alabama Optometric Association conducts a campaign for collection and sale of old gold with proceeds going to college scholarships. Individuals also contribute to various scholarship funds and the Better Vision Program of the University of Houston provides the Alabama Association with one scholarship.

The Alabama Optometric Association will award a \$500.00 scholarship for use at the commencement of the first year of optometry college to a senior student in the State of Alabama.

ARKANSAS

The Arkansas Optometric Association has an Emergency Loan Fund which is administered by the Executive Board of the Arkansas Optometric Association. Loans are usually available quickly for tuition and fees. The loan fund has not been designated as a full degree loan program. There are limitations as to the amount each student may borrow. Students who are interested may contact: Arkansas Optometric Association, P.O. Box 188, Osceola, Arkansas.

The Woman's Auxiliary to the Arkansas Optometric Association plans to offer a scholarship for 1964-65. It will be awarded not later than September 1, 1964.

The Auxiliary gives a \$250 scholarship and the colleges of the student's choice (by previous arrangements with the colleges) matches the \$250 making a total of \$500 available. For information contact: Mrs. Milton E. Webb, Box 346, Blytheville, Arkansas.

ARIZONA

(For information on scholarships contact: Dr. Richard O'Heran, 1000 Apache Blvd., Tempe, Arizona 85281)

CALIFORNIA

(Contact California Optometric Association, 926 "J" Building, Suite 810, Sacramento, California.)

Scholarships**Central California Society Annual Scholarships**

Scholarships in the value of \$50 each are available for pre-optometry study at Fresno State College, Fresno City College, Porterville College, College of Sequoias (Visalia), Coalinga College, and Reedley College.

Woman's Auxiliary to the Central California Society

\$100 scholarship for a student entering optometry school.

Woman's Auxiliary to the California Optometric Association

Two \$200 annual awards, one each at the University of California School of Optometry and Los Angeles College of Optometry, to fifth year students in optometry.

Loan Funds**Woman's Auxiliary to the California Optometric Association**

Available to senior students at Los Angeles College of Optometry and University of California. Students must be a resident of California for five years.

FLORIDA

(Contact Florida Optometric Association, Suite 326, 308 Tampa Street, Tampa 2, Florida.)

Scholarships**State of Florida**

Five annual scholarships up to \$4,000 each for four years' attendance at accredited college of optometry. Available upon completion of pre-optometric requirements and acceptance by college. Recipients must be a resident of Florida no less than five years. Must agree to practice in locale designated by State Board. (Apply Florida State Board of Optometry, 202 North Howard Avenue, Tampa 6).

Loan Funds**Seymour G. Schneider Memorial Fund**

(See Illinois College of Optometry)

Florida Optometric Association Loan Fund

Limited short-term emergency loans, when funds are available, to optometry students.

GEORGIA

(Contact the Georgia Optometric Association, 3272 Peachtree Road, N.E., Suite 18, Atlanta, Georgia 30305.)

Scholarships

Georgia Optometric Association and the Woman's Auxiliary to the Georgia Optometric Association.

One \$500 scholarship is awarded for the first year of study at a school or college of optometry. Applicants judge on scholarship, character, financial need and leadership. Recipient shall practice for at least three years in Georgia upon licensing. An essay of not more than 1,000 words on "Why I Want to be an Optometrist" must accompany the application.

IDAHO

(Contact Idaho Optometric Association, 427 No. Arthur, Pocatello, Idaho.)

Scholarships**The Idaho Optometric Association**

A \$500 scholarship award is made to an Idaho high school

senior for use during his first year of enrollment in one of the following optometry schools: Illinois College of Optometry, Los Angeles College of Optometry, or Pacific University School of Optometry.

ILLINOIS

(Contact the Illinois Optometric Association, 3546 Ridge Road, Lansing, Illinois.)

Scholarships

Illinois Optometric Association

Full tuitional scholarships to Illinois College of Optometry cover three years of professional study, \$800 each year. Total commitment of Illinois Optometric Association for a year is \$2,400.

INDIANA

(Contact the Indiana Optometric Association, 419 Bankers Trust Bldg., Indianapolis, Indiana.)

Scholarships

The Woman's Auxiliary to the Indiana Optometric Association, in co-operation with the National Auxiliary Scholarship Program of the Woman's Auxiliary to the American Optometric Association, offers a \$200 scholarship each year to an Indiana student to be selected from applications received not later than April 1. A special committee of three outstanding persons will determine the winner. Selection will be based on academic performance and ability; evidence of good character, personality, leadership, evidence of financial need; and sincerity of interest in optometry as a career.

The sum of \$200 will be paid to the optometry school or college of the winner's choice upon matriculation. At several of the optometry schools the winner of this scholarship will be eligible for further special fee and tuition considerations varying in value up to \$200.

IOWA

(Contact Iowa Optometric Association, 723 Insurance Exchange Bldg., Des Moines, Iowa, 50309.)

Scholarships

Iowa Optometric Association

Two - \$500 scholarships

Women's Auxiliary to the Iowa Optometric Association

One scholarship

KANSAS

(Contact Kansas Optometric Association, 820 Quincy, Topeka, Kansas.)

Scholarships

Kansas Optometric Association

One scholarship is awarded each year to a young man or woman that is a high school graduate. The scholarship provides for

tuition and fees for the years in optometry school. The recipient is selected on the basis of scholarship, leadership, and financial need.

KENTUCKY

(Contact the Woman's Auxiliary to the Kentucky Optometric Association, Mrs. Henry Siegel, 602 Forest Hill Drive, Frankfort, Kentucky).

Scholarships

Woman's Auxiliary to the Kentucky Optometric Association.

Two \$800 scholarships available at the direction of the Council on Public Higher Education for use through the Southern Regional Education Board at the University of Houston College of Optometry.

LOUISIANA

(Contact Mrs. Leon M. Reiss, President, Women's Auxiliary to the Louisiana State Association of Optometrists, 1705 Green Acres Road, Metairie, La.)

Scholarships

Women's Auxiliary to the Louisiana State Association of Optometrists.

Funds available for scholarships for Optometric Students.

MARYLAND

Scholarships

Woman's Auxiliary to the Maryland Optometric Association

\$250 scholarship to student from Maryland meeting scholastic requirements. Applicant must have completed pre-optometric requirements and been accepted by an Optometric college. Contact Mrs. Carole Rubin, 2510 Colebrook Drive, Hillcrest Heights, Maryland.

MASSACHUSETTS

(Contact Massachusetts Society of Optometrists, 101 Tremont Street, Room 603, Boston, Massachusetts.)

Scholarships

Massachusetts Society of Optometrists

Four \$200 scholarships offered annually to worthy students who give promise of achievement in the study of optometry. Students who are awarded these scholarships are eligible for continued payment of the stated sum as long as they continue to maintain grade levels placing them in the upper half of their classes and they continue to demonstrate need for financial assistance. Applicants must be residents of Massachusetts and must signify their intention to practice within the Commonwealth.

MICHIGAN

(Contact Michigan Optometric Association, 321-22 Hollister Building, Lansing 8, Michigan.)

Scholarships**Woman's Auxiliary to the Michigan Optometric Association**

Three \$250 scholarships are given annually to optometric students from Michigan. Recipients may attend the optometry college of their choice.

Students must have a "B" average in pre-optometric studies to be considered and must show financial need. Grant will be renewed yearly if scholarship level is maintained and need for financial assistance continues.

Emil H. Arnold Scholarship

Two \$300 scholarships are maintained at Ohio State University for optometric students from Michigan. Requirements are at least a "B" average in pre-optometric studies. Scholarships will be renewed yearly if scholastic average is maintained.

MINNESOTA

(Contact the Woman's Auxiliary to the Minnesota Optometric Association, c/o Mrs. John R. Hanson, 103 E. Chapman St., Ely, Minn.)

Scholarships

\$250 scholarship to Minnesota student enrolled in second year of college. Must be in upper one-third of class and following course leading to optometric study. Selection will be based on academic performance and ability, on leadership, character, personality and sincerity of interest in optometry. Cannot be related to a licensed optometrist.

MISSISSIPPI

(Contact the Mississippi Optometric Association, Lexington, Mississippi.)

Scholarships**Mississippi Optometric Association**

Scholarship provided through Better Vision Program of University of Houston. (See University of Houston).

Mississippi Optometric Foundation

Provides scholarship assistance through Memorial Fund.

MISSOURI

(Contact the Missouri Optometric Association, 238 East High Street, Jefferson City, Missouri.)

Scholarships**Woman's Auxiliary in cooperation with Missouri Optometric Association.**

The "Man of Vision" scholarship - \$500.00 - for the study of optometry sponsored by The Woman's Auxiliary of the Missouri Optometric Association.

The "Roberta Ruth Langley Memorial" \$500.00 scholarship sponsored by Langley Optical, Inc., in cooperation with The Missouri Optometric Association, Inc.

MONTANA

(Contact the Woman's Auxiliary to the Montana Optometric Association, c/o Mrs. Chris Berg, Conrad, Montana.)

Scholarships**Woman's Auxiliary to the Montana Optometric Association**

One \$250 annual award to student entering study of optometry. May be awarded to pre-optometry student, but funds are not to be used until student enters school of optometry.

NEBRASKA

(Contact Nebraska Optometric Association, 418-419 Clarke Hotel, Hastings, Nebraska.)

Scholarships**Woman's Auxiliary to the Nebraska Optometric Association**

Two \$200 scholarships. Each awarded annually to man or woman with proper pre-optometry credits. Recipients selected on character, financial need and scholastic achievement. Contact: Mrs. Ardith Macaluso, 630 North D, Fremont, Nebraska.

NEW HAMPSHIRE

(Contact the New Hampshire Optometric Association, 3 Central Square, Keene, New Hampshire.)

Scholarships**New Hampshire Optometric Association and Woman's Auxiliary**

Joint scholarship of \$200 to \$250 annually.

NEW MEXICO

(For information on scholarships contact: Mrs. A.S. Mixer, Executive Secretary, New Mexico Optometric Association, P.O. Box 6065, Albuquerque, New Mexico 87107.)

NEW YORK

(Contact the New York State Optometric Association, 250 West 57th Street, New York 19, New York.)

Scholarships**New York State Optometric Association**

Two scholarships.

NORTH CAROLINA

(Contact the North Carolina State Optometric Society, Post Office Box 1153, Wilson, North Carolina.)

Scholarships**North Carolina State Optometric Society and the Woman's Auxiliary to the North Carolina State Optometric Society**

Two \$500 scholarships to be awarded to optometric students each year.

PENNSYLVANIA

(Contact Pennsylvania Optometric Association, 218 North Street, Harrisburg, Pennsylvania.)

Scholarships**Pennsylvania Optometric Association**

\$3,400 four-year full tuition scholarship at Pennsylvania State College of Optometry to residents who meet pre-optometric college requirements. Candidate must be in upper half of class. Recipients must remain in upper half of class during course. Members of immediate families of optometrists are not eligible.

Woman's Auxiliary to the Pennsylvania Optometric Association

One \$3,400 four-year full tuition scholarship to women residents of the Commonwealth of Pennsylvania for admittance to the Pennsylvania State College of Optometry. Two years of pre-optometric college work and a ranking in the upper half of the class during the last academic year in college is necessary to be eligible. Each scholarship will remain in full force until graduation if the scholastic standing maintained in the professional curriculum ranks the recipient in the upper half of her class.

SOUTH CAROLINA

(For information on Scholarships and Loan Funds contact: David T. Mixon, O.D., Chairman, SCOA Scholarship Committee, 201 No. Broad St., Clinton, S.C.)

TENNESSEE

(Contact: Tennessee State Optometric Association, Whitley Building, Hillsboro Village, Nashville, Tenn. 37212)

Woman's Auxiliary, Tennessee State Optometric Association.

3-year scholarship, Southern College of Optometry
 First-year Grant of \$250 by TSOA Auxiliary carries matching grant of \$250 from Southern College of Optometry - \$500
 Second-year grant by TSOA Auxiliary only - \$300
 Third-year grant by TSOA Auxiliary only - \$300
 Total of 3-year scholarship \$1,100.00.

Loan Funds**Tennessee State Optometric Association**

Loan funds of \$300 per year at 3% interest, with terms of repayment to be arranged, are available to students enrolled in a school of optometry.

Contact Tennessee State Optometric Association, 602-A Main Street, Savannah, Tennessee.

VIRGINIA

(Contact the Virginia Optometric Association, 2110 Spencer Road, Richmond 30, Virginia.)

Scholarships**Virginia Optometric Association**

One \$500 scholarship available to a Virginia resident on completion of pre-optometry requirements and acceptance by an optometric school or college.

Woman's Auxiliary to the Virginia Optometric Association

One \$250.00 scholarship. Available to a Virginia resident on

completion of pre-optometry requirements and acceptance by an Optometric School or College.

Loan Funds

Alma H. Wilcox Educational Fund

Loan funds may be obtained from the Alma H. Wilcox Educational Fund administered by trustees appointed by the Virginia Optometric Association.

WASHINGTON

(Contact the Washington Optometric Association, Mr. Ted Best, Executive Secretary, 4210 S.W. Oregon, Seattle, Washington.)

Scholarships

Woman's Auxiliary to the Washington Optometric Association

A scholarship of \$250.00 shall be awarded a student who has acquired academic credit permitting enrollment in optometric courses. It can be awarded as early as high school graduation, but monies become available and are accredited toward tuition only as the student is admitted to, and actually begins his optometric studies - normally his junior year, at the college of his choice. Additional tuitions may be received at most of the optometric schools. Assistance determined by funds available and regulations in effect at the individual institutions.

WEST VIRGINIA

(Contact the West Virginia Optometric Association Auxiliary Scholarship Chairman, c/o Mr. Eugene Merrill, Executive Secretary, Room 2, Strong Building, Parkersburg, W. Va.)

CANADA

ONTARIO

(Contact Optometrical Association of Ontario, 83 Bloor Street, West, Toronto 5, Ontario, Canada or College of Optometry of Ontario, 140 St. George St., Toronto 5, Ontario, Canada.)

Scholarships

Optometrical Women's Auxiliary Scholarship

\$75 awarded by the Women's Auxiliary to the Optometrical Association of Ontario, to third year students who have the highest total marks for the first three years in the subject of Optometry.

\$50 awarded by the Women's Auxiliary to the Optometrical Association of Ontario to the second year student who has the highest total marks for the first two years on the subject of optics: geometrical, physical, and mechanical.

The Board of Directors in Optometry in the Province of Ontario

Two \$450 scholarships awarded to two Ontario applicants of outstanding ability on the basis of academic standing. No more than one of these recipients may be a resident of the City of Toronto.

QUEBEC

(Contact the Minister of Social Welfare, Ottawa, Quebec.)

Loan Funds

Provincial Government of Quebec and the Pret d Honneur of the St. Jean Baptist Society

Loan fund of \$400 to \$500 per year at University of Montreal.

PROVINCE OF SASKATCHEWAN

(Contact the Registrar, Saskatchewan Optometric Association, 513 McCallum Hill Building, Regina, Saskatchewan, Canada.)

Scholarships

The Saskatchewan Optometric Association offers one, \$400 scholarship annually to residents of Saskatchewan who have completed their grade twelve or Senior matriculation. Application forms can be obtained from Dr. D.V. McAfee, Box 245, North Battleford, Saskatchewan.

Loan Funds

Student loans are also available through the Government of Saskatchewan and inquiries should be directed to the Department of Education.

OTHER ORGANIZATIONS**Scholarships****Foundation for Education and Research in Vision, Inc.**

Six \$200 scholarship per year. The student must be enrolled and in good standing at an accredited optometric school or college.

Contact Foundation for Education and Research in Vision, Inc., 308 West Fifteenth Street, Austin, Texas.

American Optometric Foundation

American Optometric Foundation fellowships, usually awarded annually, are for graduate study and/or research and are in the amount of \$1800 each. They are made to qualified applicants who possess an academic degree, a graduate degree in optometry, who are working toward their Ph. D. degree, and who plan to make teaching or research in an optometric school or college their career. The fellowships are approved on a year-to-year basis for a three-year maximum, dependent on progress. The deadline for filing an application is February 15.

Contact: American Optometric Foundation, Inc., 201 South Central Avenue, St. Louis, Missouri 63105.

**SCHOLARSHIPS AVAILABLE FROM THE
WOMAN'S AUXILIARY TO
THE AMERICAN OPTOMETRIC ASSOCIATION**

(Contact National Auxiliary President, American Optometric Association, Administrative Office, 4030 Chouteau Avenue, St. Louis, Missouri, 63110)

Many state auxiliary affiliates provide \$250 scholarships, with matching grants available from the following:

Illinois College of Optometry
 Indiana University, Division of Optometry
 Los Angeles College of Optometry
 Massachusetts College of Optometry
 Pennsylvania State College of Optometry
 Pacific University College of Optometry
 Southern College of Optometry
 University of Houston

SCHOLARSHIPS, FELLOWSHIPS, AND LOAN FUNDS AVAILABLE FROM SCHOOLS AND COLLEGES OF OPTOMETRY

ILLINOIS COLLEGE OF OPTOMETRY

(Contact the Illinois College of Optometry, 3241 South Michigan Avenue, Chicago 16, Illinois.)

Scholarships

Midwest Optometric Scholarship Fund

Established by anonymous donors, this fund provides several full or part tuitional scholarships and is administered by the college. They are available to any student who has completed the pre-optometry curriculum required for admission to Illinois College of Optometry and are granted on the basis of scholarship and need.

The Dr. John J. Brady Memorial Scholarship

This fund provides for tuitional grants to deserving students and is administered by the college. They are available to students showing evidence of completion of the pre-optometric curriculum required for admission to Illinois College of Optometry and are granted on the basis of scholarship and need.

Foreign Scholarships

Two tuitional scholarships available to qualified students who are residents and citizens of foreign countries and show evidence of completion of the pre-optometric curriculum required for admission to Illinois College of Optometry.

Fellowships

One or more full or half tuitional fellowships are offered to students entering their first professional year of study. Applicants must present evidence of the satisfactory completion of two years of college work at an accredited institution. Awards will be based on scholarship, student interviews, recommendation from professional and community leaders, and the performance in a competitive essay on "The Contribution of Optometry to My Community." Fellowships are also available at the end of the first and second years of study. One or more full or half

fellowships in the amount of a half year tuition will be awarded at the end of these respective years to those students who maintain an excellent academic record and also make distinguished contributions in leadership and service. One half of this amount will be applied toward tuition in each semester in the year in which it is awarded.

Loan Funds

Four student loan funds are presently available at Illinois College of Optometry. The Doctors Wesley-Jessen Fund, Morris Manas Memorial Fund, Martha Gudbaur Student Aid Fund, and the Illinois College of Optometry Student Loan Fund total over \$14,000. Loans are limited in amounts to approximately \$500. These student loan funds are available to any student who has satisfactorily completed one academic year of study at the Illinois College of Optometry. A loan must be repaid no later than one year after graduation.

National Defense Student Loan Fund

Loans are available to students who are citizens regardless of what year of professional study they are in. Approximately \$200,000 is available in this fund. Loans are repayable over a ten year period after graduation.

Dr. Seymour G. Schneider Memorial Loan Fund

Applicant must be Florida resident attending ICO. Loan bears 3% interest on unpaid balance, and must be repaid within one year after graduation.

INDIANA UNIVERSITY

(Contact Director of Scholarships and Financial Aids, Maxwell Hall, Indiana University, Bloomington, Indiana.)

General University Scholarships

At least two state scholarships are offered to students in each county of the state. There are some 250 Merit Scholarships awarded each year as well as many endowed scholarships.

University Loan Funds

Students in good standing in the Division of Optometry are eligible for loans which are available to University students in general.

For other scholarships see Indiana, page 5

LOS ANGELES COLLEGE OF OPTOMETRY

(Contact Registrar, Los Angeles College of Optometry, 950 West Jefferson Boulevard, Los Angeles 7, California.)

Scholarships

Alpha Gamma Sigma

Honorary fraternity in California junior colleges may nominate one man and one woman annually to receive scholarships. Given only to students in junior colleges. Information available from chapter representative on junior college campuses.

Los Angeles College of Optometry Alumni Association

Alumni, in cooperation with local societies, jointly sponsor \$100 scholarships each to students enrolled in pre-optometry

courses at an accredited junior college. Participating societies are Los Angeles County, Long Beach, Rio Hondo, Mojave Desert and San Gabriel Valley. Applications may be made to society president in area of student's junior college, or to: Registrar, Los Angeles College of Optometry.

Woman's Auxiliary to the California Optometric Association

\$200 scholarship granted annually to optometry student in final year. Must be California resident for at least five years. Must maintain 2.00 grade point average for first two years in optometry. Award also given on basis of leadership and interest in profession, and financial need.

State Optometric Association Awards

Various state optometric associations award scholarships. Students interested in applying can contact the college, or presidents of their home state optometric associations, or the pre-optometry advisor in their college.

Student Council Award

Student Council administers funds, supported by student activities, each year which are distributed as scholarships. Award provisions are determined yearly by the Council after consultation with the college administration. Recipients selected from the student body.

Tom C. Hinds Scholarship

Available to Negro student enrolled in optometry. Selected by Mr. Hinds and the administration. Scholarship valued to \$1,000.

Philippine Optometry Awards

One year scholarships equal to full or partial tuition available to graduates of Centro Escolar University School of Optometry, Manila.

Loan Funds

Alumni Association Loan Fund

\$500 loan fund established as part of association's Development Fund. Available at no interest to seniors; repayable within one year after graduation. Selection made by college business office.

Woman's Auxiliary to the California Optometric Association

Limited fund for senior students on basis of: (1) California residence for four years; (2) grade point average of at least 1.50 during first two years; (3) financial need. Applications may be made to Auxiliary President or through the college business office.

National Defense Student Loan Fund

Full-time students with financial need to continue education may apply for a loan each semester under this act. Applications and details available from the Registrar-Comptroller.

MASSACHUSETTS COLLEGE OF OPTOMETRY

(Contact Massachusetts College of Optometry, 178 Newbury Street, Boston 16, Massachusetts.)

Scholarships

Maurice H. Saval Tuition Scholarships

Two \$600 (\$300 per year for two years) available annually to a

needy and worthy student who gives promise of achievement in the study of optometry, and who meets all the requirements for admission. To be eligible for the second installment of the scholarship, the student's academic achievement at the end of the year should rank him among the upper third of his class.

Massachusetts Society of Optometrists' Scholarships

Four \$200 scholarships annually to worthy students who give promise of achievement in the study of optometry. Students who are awarded these scholarships are eligible for continued payment of the stated sum as long as they continue to maintain grade levels placing them in the upper half of their classes and they continue to demonstrate need for financial assistance. Applicants must be residents of Massachusetts and must signify their intention to practice within the Commonwealth.

Alumni Association Tuition Scholarship

Two \$150 scholarships annually to needy and worthy students of the fourth year class. These scholarships are applied to the students' tuition fee. The recipients of the scholarships will be selected by the faculty Committee on Scholarships and Awards from eligible candidates.

National and State Auxiliaries Scholarships

The Woman's Auxiliary of the American Optometric Association, together with the Woman's Auxiliary of state affiliated groups, will provide one-year tuition scholarships of \$250. The Massachusetts College of Optometry will augment this amount with an additional \$250 offering two such \$500 scholarships each year to duly qualified students admitted through the Woman's Auxiliary.

Woman's Auxiliary-Massachusetts Society of Optometrists

\$150 contributed toward the tuition fee in support of a needy and worthy student who is eligible for admission to the Program of Study in Advanced Optometry leading to the Doctor of Optometry Degree. Scholarships will be matched by Massachusetts College of Optometry.

Optical Wholesalers Association of New England Scholarships

The Optical Wholesalers Association of New England offers annually an undergraduate scholarship of \$375, and a graduate scholarship of \$300 to needy and worthy students who reside in New England. The undergraduate must have completed at least the first semester of the second year program of study.

Applications for the undergraduate scholarship should be filed no later than March 1st, and applications for the graduate scholarship should be filed no later than June 14th.

Henry L. Battalin Scholarship

The Henry L. Battalin Memorial Scholarship of \$200 is offered annually to a fourth year student who is needy and worthy, and who resides in the State of Connecticut.

New York Alumni Tuition Scholarships

The New York Alumni Association offers two \$250 scholarships annually to residents of New York who prove to be financially

needy and scholastically worthy, and who have completed at least one year of the professional curriculum.

Honors and Awards

Graduation with honors are conferred upon students for distinguished scholarship in the courses in the professional curriculum. Students who have earned an average (weighted) of 95 to 100 graduate Summa Cum Laude; those who have earned an average (weighted) of 90 to 95 graduate Magna Cum Laude; and those who have earned an average (weighted) of 85 to 90 graduate Cum Laude.

The Theodore F. Klein Memorial Award

Each year the Board of Trustees of the Massachusetts College of Optometry makes an award of \$200 to that member of the first year class who achieves the highest scholastic average in all courses in the first year curriculum.

The Joseph J. Scanlon Award

This award is made available annually by the Zeta Chapter of the Omega Epsilon Phi Fraternity to that member of the graduating class who has the best record for efficiency in the conduct of clinical work.

The Lester J. Epstein Award

This award is made available annually by the Pi Omicron Sigma Fraternity to that member of the graduating class who achieves the highest grades in theoretical and applied optometry.

Valedictory Award

This award is made available annually by the Faculty of the Massachusetts College of Optometry to that member of the graduating class who achieves the highest general average in the courses of the professional curriculum.

Alumni Association Award

The Alumni Association of the Massachusetts College of Optometry offers an Alumni Plaque annually to that member of the graduating class who has achieved an outstanding scholastic and extra-curricular record.

Beta Sigma Kappa Award

The Beta Sigma Kappa International Honorary Society awards a silver medal annually to that member of the graduating class, designated by the Dean, who has the most outstanding record of scholarship, leadership, and talent.

Loan Funds

The Rose and David Berlowitz Student Assistant Fund

A \$500 fund was established to provide needy and deserving students with the opportunity to make loans to meet financial emergencies. Loans are available to students who have completed one year of study at the Massachusetts College of Optometry. The loans must be repaid not later than one year after graduation.

Western District Massachusetts Society of Optometrists Auxiliary Loan Fund

The Western District Massachusetts Society of Optometrists Auxiliary Loan Fund was established to aid students who are in need. Loans are available to students who have completed one academic year of study at the Massachusetts College of Optometry. The loans must be repaid not later than one year after graduation.

Emergency Loan Fund of the Alumni Association

The Alumni Association of the Massachusetts College of Optometry has established an Emergency Loan Fund of \$200 to be made available annually to meet the emergency needs for small loans by members of the student body. The administration of this Fund is left to the discretion of the Dean.

OHIO STATE UNIVERSITY

(Contact Director, School of Optometry, The Ohio State University, 338 West Tenth Avenue, Columbus, Ohio 43210.)

Scholarships**General University Scholarships**

Each year the University Scholarship Office budgets scholarship funds to be awarded to optometry students on the basis of academic standing and need. In order to qualify, a student must maintain either a B average or stand academically in the upper one-third of his class in the School of Optometry. All students in optometry irrespective of residency are eligible for consideration. The amount of the scholarship award per year varies from \$200 to \$400.

If a student at any level of his education in the School of Optometry is awarded a University Scholarship, he may be continued on his scholarship so long as he maintains a satisfactory academic standing. Three of the University Scholarships are available to new students entering the School of Optometry for the 1964-1965 academic year.

Privately Provided Scholarships

While no specific commitment is made by the Woman's Auxiliary to the Michigan Optometric Association, they have for several years supported scholarships for several students in varying amounts who are residents of the State of Michigan. This support during the 1963-1964 academic year amounted to \$500 given to three Michigan students.

Effective for the year beginning September 1964, a grant of \$500 has been made to The Ohio State University School of Optometry by the Quality Optical Company, Cincinnati, Ohio, to support a scholarship or scholarships as determined by the Director.

Emil H. Arnold Scholarships in Optometry

Two scholarships of \$300 each, will be offered to entering students who reside in the State of Michigan. In order to qualify for consideration, applicants must have earned at least a B average in their pre-optometry college courses. The pre-optometry courses may be completed in any accredited junior college, college or

university. Recipients will be eligible for renewal of their scholarships for the same amount each year of their enrollment in the School of Optometry, if they maintain a B average or better. These scholarships are provided by a grant to The Ohio State University by Dr. Emil H. Arnold, Ann Arbor, Michigan.

Loan Funds

University Loan Funds

Student loans are handled by the University Scholarship and Financial Aid Office. Students who are on scholarship grants may also receive loans. The university will loan as much as \$1,000 at a low interest rate to be repaid in small installments following graduation.

PACIFIC UNIVERSITY

(Contact Director of Admissions, Pacific University, Forest Grove, Oregon.)

Scholarships

General University scholarships are available for various amounts up to full tuition. They are based upon:

1. Academic achievement and promise as indicated by high school or college records.
2. Relative financial need.
3. Qualities of character and promise of contribution to the college and to the community.

Pacific University matches scholarship funds made available by State Optometric Associations and other groups for students entering or enrolled in the Pacific University College of Optometry under the following conditions:

1. The student must have maintained a GPA greater than 2.5 for all pre-optometry courses.
2. Need must be established on the basis of evaluation of the College Scholarship Service form by the Financial Aids Committee of the University.
3. The scholarship must be renewable by the sponsoring group providing that the student maintains a GPA of better than 2.5 during each year in the professional program.
4. The total amount available to the student from both the sponsoring organization and the University shall not exceed the amount of tuition for each year (this is currently \$900.00).

Oregon Congregational Conference, Pacific University Scholarship Program

A number of awards are available to members of Pilgrim Fellowship Groups in Oregon, coming through the Congregational Conference at Pacific University Matching Scholarship Program.

The Wehrhan Scholarship

The combined churches of the Tacoma area in Pacific University Matching Funds offer several scholarships annually.

The Elbridge and Mary Stuart Scholarship

Three \$325 per year Scholarships to worthy students of Christian

character from the State of Oregon and/or Washington.

The W. E. McKnight Memorial Scholarship

A \$3,000 fund available for the purpose of providing scholarship aid to worthy students.

The William Morgan Kent Memorial Fund

Available fund of \$3,400 to worthy students majoring in Social Science, who have successfully pursued studies in college in such field, for at least one year, preferably two years.

The William Robertson Warren Memorial Award

A \$10,000 fund available to needy men students enrolled in the University.

Pacific University Guild Scholarships

Supported by the income from a fund of \$5,000 to aid worthy students desiring to attend the University.

Forest Grove Woman's Club Scholarship

Offered annually to a woman graduate of the Forest Grove Union High School.

Phi-Beta-Tau Scholarships

A scholarship of about \$150 offered annually to one or more high school senior boys upon entering the University.

A. H. Harding Memorial Fund

The income from this fund provides scholarships for outstanding students.

P. E. O. Sisterhood Scholarship Fund

A \$125 scholarship grant to apply on tuition for high school senior girls with high scholarship.

Eastern Star Scholarship Fund

\$100 scholarships annually to women students who are members or daughters of members of the Order of the Eastern Star in Oregon. Scholarships are to be presented at the end of the junior year to worthy students in need of financial assistance for the senior year. Women students majoring in religious education will receive preference; however, the scholarships are not limited solely to this field.

Price Memorial Scholarship

This fund provides a scholarship each year for some deserving upper class student.

Loan Funds

Government Funds

Recently allocated funds totaling about \$17,000.

The Pacific University Guild Loan Fund

This fund now totals over \$7,000. Available to junior and senior students.

Blance M. Fuller Memorial Loan Fund

This fund now totals \$485, and is available for loan to students at any college level actively interested in the Christian program on the campus.

Maude Brown Pendleton Loan Fund

Total of approximately \$2,700. Loans are available to all students.

Daughters of the American Revolution Loan Fund

This fund amounting to \$900 is available to junior and senior students only.

R. A. Booth Loan Fund

This fund amounts to \$790 and is available to all students.

Ralph Moser Loan Fund

This fund is available to students who need immediate financial assistance for a short period of time.

Mayflower Loan Fund

This fund amounts to \$650. It is available to all students.

Annie Roberts Foundation

Provides loans not to exceed \$200 per year per student.

Eastern Star Loan Fund

This fund makes loans of not more than \$300 to senior women students who are members or daughters of members of the order of the Eastern Star in Oregon. Notes draw 4% interest and are due not later than one (1) year following graduation.

PENNSYLVANIA STATE COLLEGE OF OPTOMETRY

(Contact Pennsylvania State College of Optometry, 6100 North Twelfth Street, Philadelphia 41, Pennsylvania.)

Scholarships

Three 4 year scholarships available to applicants who complete their pre-professional college work in a regionally accredited college or university, \$850 each per school year. Any student who has completed or will complete entrance requirements of the college prior to the beginning of the next academic year, is eligible to compete. Application must be submitted before May 1st of the entering year. The applicant must have a good scholarship record in high school and college, and be recommended by the dean or pre-professional advisor where he took his pre-professional work.

Student Loans**National Defense Education Act**

The College is a participant in the National Defense Education Act, Student Loan Program. Limited funds are available for loans to students under this program.

There is a student loan fund administered by the Student Council, which provides small short term loans, interest free.

A Divided Payment Bank Loan Program.

SOUTHERN COLLEGE OF OPTOMETRY

(Contact Dr. Ina B. Cramer, Secretary-Treasurer, Southern College of Optometry, 1246 Union Avenue, Memphis 4, Tennessee.)

Scholarships

The college will match four scholarships in the amount of \$250 per year when the initial award is made by a state auxiliary for a period of one year. Any such scholarship awarded by Southern

College is for one year, and it may be made to a student of any classification.

The college also awards for one year the following scholarships: (a) Two one-year scholarships in amount of \$350 to students in the Junior class, and (b) Two one-year scholarships in amount of \$450 to students enrolled in the Senior class.

Student Savings Plan

The Student Savings Plan enables the prospective student to save systematically for his professional education in optometry. He may open an account for as little as \$25. Deposits of \$10 or more may be made quarterly, monthly, or as frequently as desired. Interest at the rate of three per cent per year is paid for the time the money is on deposit, beginning the first day of the month following that in which the deposit is made. When the student enrolls, the money he has deposited plus interest earned is used to help defray college expenses. Total deposits, without interest, may be withdrawn at any time if it proves impossible for the depositor to attend the college.

Loan Funds

The college participates with a local bank in operating a student loan fund. The fund lends up to \$500 per student in any one year.

The basis for awarding scholarships and approving loans is: Financial need, good academic achievement, and good promise for future practice of optometry.

UNIVERSITY OF CALIFORNIA

(Contact Dean, School of Optometry, University of California, Berkeley 4, California.)

Scholarships and Fellowships

General University Scholarships

There are a number of scholarships which are granted by a Committee on undergraduate scholarships and by a committee on graduate scholarships. These are awarded on the basis of scholarship and need to any registered student at the University of California.

Berkeley Tonometer Co.

One \$500 scholarship awarded to a fourth year student in the school of optometry.

California Optometric Alumni Association

Several scholarships available. \$500 to graduating high school seniors. \$450 to college pre-optometry students. \$400 to students entering School of Optometry. \$200-\$400 to second and third year optometry students. High school awardees receive \$50 at high school graduation, \$50 at end of first year of satisfactory pre-optometry work at accredited college, and \$400 during first year at UC School of Optometry. Pre-optometry students receive \$50 at end of first year of satisfactory work at accredited college, \$400 during first year of optometry school. Entering students and second and third year students in School of Optometry receive four equal installments in October, November, March and April of academic year. Scholarship Committee accepts applications

between February 1 and May 1. By May 15, all applicants notified of awards. Winners must signify acceptance by May 25.

Katz and Klein Graduate Fellowship in Optometry

\$500 to fifth-year students in the School of Optometry on the Berkeley campus who have been California residents for at least three years, and who have shown outstanding academic, clinical, and professional potential in the field of optometry.

Ralph S. Minor Memorial Scholarship

\$400 to a School of Optometry student. Scholarship awarded from special funds collected by the Optometry Alumni Association and granted on scholarship and professional promise.

Nonresident Scholarship

One \$250 scholarship grant to be awarded to an entering student based on need and scholarship. This scholarship is administered by the Dean of Students of the University of California with the advice of the Dean of the School of Optometry. Ordinarily this scholarship will be granted to an out-of-state student and will be used to match scholarships granted by out-of-state agencies such as optometric associations, women's auxiliaries, etc.

Schneider, George L. Memorial Scholarship

One \$500 grant to fifth-year students of exceptional scholarships and potential ability as clinicians, who are candidates for an advanced degree (M.O.) in the field of optometry on the Berkeley campus.

Women's Auxiliary to the California Optometric Association Fellowship \$300 open to needy graduate students in optometry who have been residents of California for at least five years, and who show outstanding leadership and interest in optometry.

Loan Funds

General University Loans

These are limited funds available for loan to needy students by the University. These loans are administered by the Dean of Students.

National Defense Student Loan Funds

Loans up to a maximum of \$1,000 per year for a total of \$5,000 are available for full-time needy students. These loans are administered by the Dean of Students of the University of California.

UNIVERSITY OF HOUSTON

(Contact University of Houston, College of Optometry, Houston 4, Texas.)

Scholarships

Better Vision Scholarships

\$500 tuition awards for first year optometry students for the University of Houston. At least one scholarship will be given to a qualified applicant in each of the following states: Alabama, Arkansas, Florida, Georgia, Louisiana, Kansas, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, and Texas. In addition, there will be at least one Better Vision Scholarship specifically designated for women students.

The recipient will be selected on the basis of financial need, scholastic ability, and admission to the University of Houston, College of Optometry. All that is required is an approved admission which can be granted conditionally upon completing the remainder of your pre-optometry courses.

While grades are a consideration and a C average is required for admission to the College of Optometry, financial need and overall ability of the applicant weigh heavily.

If any state listed above does not have a qualified applicant by August 15, the Faculty Scholarships Committee will consider applicants from other states for the scholarship.

The Foundation for Education and Research in Vision

Offers 4 scholarships of \$200 each.

Unrestricted Scholarships

These are offered by the University and optometry students may apply.

William J. Kuhlman Memorial Scholarship

\$200 to a College of Optometry student. Scholarship awarded from income from bequest by Dr. William J. Kuhlman.

Loan Funds

Education Funds Plan

Provides funds to meet any or all costs of an education. Repayment is by convenient monthly installments.

National Defense Student Loan Program

Full-time students or prospective full-time students are eligible to apply. Students may borrow up to \$5,000 at the rate of \$1,000 per year, based on financial need, ability to do college work and character. Repayment of loans must begin one year after termination or graduation. Loans bear simple interest on the unpaid balance at the rate of 3% per year. Total loans and interest thereon must be repaid within 10 years after termination or graduation.

University Loan Funds

Any student who has established a satisfactory academic record for at least one year at the university and who has a good financial record is eligible for a loan. Loans are made for a term of one to three months depending upon the amount borrowed. A few long-term loans are made to students of upper class standing, subject to repayment during the summer or after graduation.

Dames Loan Fund

Fund established by University of Houston Dames Club to provide needy and deserving students with the opportunity to borrow up to \$50 to meet emergencies. These loans are to be repaid monthly (installments) with no interest.

White House Conference Report
on
THE SENIOR CITIZEN
AND
OPTOMETRY



Prepared by
The American Optometric Association
Committee on Vision Care of the Aging

ACKNOWLEDGMENT

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All references quoted in the text and much of the material used in the preparation of this report was taken directly from this source.

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FOREWORD

Not many years ago, a pair of spectacles was symbolic of old age, and old age was a vague period of life that most individuals sought to escape. In doing so, they often refused to admit their vision was becoming defective, that what they read easily before, now became a blurred challenge, that, where in most cases, they now had more time for leisure activities, they could no longer fully enjoy them. But pride said, "Don't submit to old age don't give in to father time don't show everyone you're getting old by wearing glasses."

Today, we realize that reduced visual efficiency is nothing to be ashamed of. It occurs in both old and young alike. In the aging person, it is a natural physiological change that takes place. When properly corrected, vision offers the senior citizen the facilities to indulge in all his regular activities with interest, vigor, and visual efficiency.

A greatly increased life span (from 20 or 30 years of age during the Roman Empire, to 40 years of age by 1850, to 50 years of age at the turn of the century, to almost 70 years of age today, and even more tomorrow) has created many problems for the human being. Much the same, it has created new areas of research for the ophthalmic professions. Increased longevity has changed our pattern of life, and our modern environment makes more and more demands on vision that optometry must cope with and conquer.

From a clinical viewpoint in optometry, a demarkation had to be made to indicate where youth ends and aging begins. Through studies, the age of 40 was found to be the place in life where presbyopia (a clinical classification for "old age" vision deficiencies) begins. The actual age depends on the individual, but by the age of 50 to 55, the process has taken place in nearly all persons, and some type of visual correction is necessary.

Since presbyopia appears around the age of 40 (long before most companies even consider retiring their employees at least 30 years prior to the end of today's life expectancy), it becomes apparent that vision is no longer a problem of the aged, but rather the aging.

Optometry gives special attention to the vision problems of our senior generation. Recognizing the physiological and psychological changes that accompany normal aging, optometry is concerned with visual acuity, refraction, accommodation, and the visual neuromuscular system. Optical aids and clinical techniques used offer every American a more productive, comfortable, self-sufficient life, even in the late years, through good vision care.

Old age can well be the golden years of human life. The optometric profession can help to make it that, by the proper care of the most vital of senses - vision!

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WHITE HOUSE CONFERENCE REPORT

ON

The Senior Citizen and Optometry

CHANGES ASSOCIATED WITH AGING

Aging, in its broadest sense, is a biological phenomenon that occurs in every living organism. Although it is difficult to narrow down to an exact definition, it might be best described as "the period when growth or proliferation has ended but the powers of regeneration still remain (Mazow, 1958)". It does not occur in all human beings at the same age, because it is controlled by such factors as heredity and environment, both variables.

When "senescence" or aging takes place, changes in tissue occur to cause visual as well as other disorders. Not all tissues and organs are affected at the same time, because not all of them reach their optimum performance at the same time.

In addition, general systemic changes occur universally in almost everyone over the age of 40, taking into consideration the considerable variations and differences of physiological and chronological ages in individuals. Few people, if any, reach old age without some complications caused by disease, particularly of a degenerative nature. The most common are: heart and vessel trouble, cancer, arthritis, rheumatism, and nervous disorders.

To offer maximum benefit to the aging person, the optometrist must take these systemic disorders into consideration, and coordinate his efforts with those of the other practitioners in the health field.

Like the other organs, the eye participates in the aging changes which take place in the human body. It is subject directly to all

the degenerative conditions that prevail, and likewise is often affected by disorders occurring in other organs.

From a psychological aspect, optometrists are deeply concerned with understanding the older years, for they are not only involved in correcting certain anomalies and complaints, but also in the practice of training people in the development of certain practical visual skills.

Many studies show some loss of visual acuity (the ability to see clearly) with age. There are many other questions that can be asked when considering the physiological and pathological changes of age on vision. To correct these, accurate measurement is of extreme importance. This has been the basis for the development of numerous physical and statistical methods for accurately measuring acuity, visual capacity and perception.

Although there are definite refractive changes that come with age, a complete understanding is made difficult by the lack of accurate measurability of some of the structures of the eye. The greatest obstacle is the crystalline lens, which unlike most other body structures continues to grow in size throughout life.

Stenstrom, in 1948, established that the refractive state among young adults is more closely correlated with axial length than any other variable or combination of variables. Studies also show that refractive changes are more marked during major growth spurts. Most experts agree that changes in refraction are rare between the ages of 25 and 40. The concern felt by a patient over forty relative to his "failing eyes" might well be the result of his having gone through 20 years or more of vision in which his refractive state has changed very little. A regular periodic examination is still necessary at any age to properly assess individual refractive changes.

The most dramatic change which occurs in aging is in "accommodation", the ability to change focus from far to near and back. The rate of decrease in ability is fairly gradual and remarkably uniform. There have been, however, some variations leading to proposals that the rate of decrease be used as an aid in predicting the life span of any given individual (Bernstein & Bernstein, 1945).

However, this as yet, has not been proven by longitudinal studies. As the inability to "accommodate" progresses, it even-

tually becomes necessary to supplement natural accommodation with a convex lens known as an "add". When this occurs, the condition is termed, "presbyopia" or "old age sight". When most people become aware of their loss of focusing ability for near work, their reaction is that they feel their "arms are too short" for ordinary reading. The supplementary lenses prescribed for older persons to do near work depend on the amount of accommodation still available, plus the distance of the usual work from the eyes and the size of detail involved.

In addition to the inability to change focus, among aging individuals there is often a change toward lack of binocular control of the eyes. Normal binocular vision requires the intraocular and extraocular neuromuscular mechanisms to operate in a coordinated manner, so that a sharp image can be maintained on both foveas at the same time, without undue effort. As one grows older, the possibility of a pathological involvement of the neuromuscular system greatly increases. Examination of the neuromuscular mechanism involves the investigation of fixation (ability to move an eye in order to place and maintain the image upon the fovea), the versions (ability to move the eyes in the same direction), and vergences (ability to move the eyes in opposite directions).

Some of the changes occurring in the ability to control the eyes that accompany aging are generally agreed to be the result of lack of proper care during the formative years. It is in the area of the visual neuromuscular system more than any other that the value of periodic vision examinations is evident. Many of the physical changes affecting the visual neuromuscular system are indications of serious general pathological problems. It is here that the optometrist as a member of the health team often has an opportunity to aid and correct an aging person's condition. The most important consideration in correcting improper motor coordination of the eyes is the patient himself, his symptoms, his requirements, and his ability to adjust.

EXAMINATION OF THE AGING PATIENT

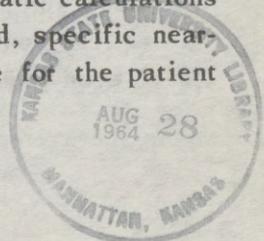
As the average life span of the American increases, the number

of senior citizens also increases. This means that the percentage of patients past the age of 40 will continue to rise. These people require a different approach in many phases of eye care and the diagnostic significance of tests varies considerably. Final prescriptions and recommendations to the senior citizen are based on the physical and mental changes that come with age, as well as the need.

The importance of the physical and visual history of a patient becomes greater with age, for the deficiency of the current visual mechanism often is a result of earlier injury, disease and general physical being. In dealing with aging individuals it has been learned that members of the patient's family can throw a great deal of light on the patient's history, especially in supplying needed details that are lost in the haze of the older individual's memory.

A patient's occupation, hobbies and activities, although perhaps more restricted, take on increased importance after 40. In examining the aging person, details such as location and position of his work, distances and eye levels while engaged in the task are considered. In some cases, actual measurements of working distances are taken. In addition, lighting and general conditions are noted. The amount of fixed attention and prolonged eye use under various conditions are also considered, and often different types of lenses are prescribed for different kinds of visual tasks. It is not unusual for the aging person to require several different types of lenses in order to see more efficiently and comfortably in his varied occupations.

There are a variety of tests used to determine all aspects of the individual's visual acuity and general eye health. Included are external examinations, ophthalmoscopic examinations for detailed inspection of the interior of the eye including particularly the lens, retina, nerve head, macular area and vessels; retinoscopy and subjective tests, in order to determine exactly what lenses are needed; phorias and ductions, which are prismatic calculations for correction of neuromuscular disabilities; and, specific near-point tests, which assume increased importance for the patient past 40.



Many optometrists, in taking histories of patients, are surprised to learn that some patients have never had a physical examination, or perhaps haven't had one in several years. It is important to understand that the body is under constant duress and change. A person reaching 40 is at a turning point physically. By working with physicians and geriatric specialists, the optometrist has the opportunity to assist in preventive care. The optometrist is often consulted professionally before other symptoms of aging have appeared. Diseases of the heart and arteries, cancer, nephritis, diabetes and others are best controlled if discovered early.

Decreased vision is found more commonly in the older age groups, and according to Wick, (1960), "Optometry's forte for the older age group lies in helping to make this period of life more worth living. With the reduction of physical stamina, so common to this period, increased use of the eyes is the general rule. Much careless advice has been given to patients with regard to saving their eyesight. There are no statistical data to substantiate any theory to the effect that use of the eyes wears them out. This advice only serves to make visual hypochondriacs of otherwise normal patients".

TIPS TO THE AGING PATIENT

Because of a deficiency in both near-point and far-point vision, often the result of natural changes in aging, the senior citizen may require bi-focal or tri-focal glasses. In order to make the adjustment as quickly and conveniently as possible, optometrists will often make a series of simple suggestions:

1. Try not to look at your feet when walking.
2. When reading a newspaper, fold it into half or quarter size, move it, rather than tilt your head upward, until you can read comfortably.
3. Be certain that the lenses are in the right position by making sure the frames are properly adjusted.
4. Wear your bifocals continuously for the first week or two, even though you may not require them for all tasks.

CATARACT AND GLAUCOMA

In considering the problem of aging as related to vision, two pathologies of clinical importance should be noted. They are senile cataract and glaucoma.

The cataract is defined as "any opacity of the crystalline lens". Although there are other manifestations which occur in individuals of all ages, the "cataract" as we generally know it is primarily associated with senility.

The complaint found most frequently among patients suffering cataracts is "my vision blurs" . . . "I can't see as well". The degree of loss depends on the nature, extent, and position of the cataract. In addition, there are other symptoms which include distortion of images, and a change in color values and hues.

Another symptom quite common is the development of "second-sight". This is a characteristic that the uninformed individual becomes quite proud of, because of a newly acquired ability to read or see at certain distances without his glasses. With the senile cataract, this is often the result of a change in the crystalline lens, which causes the eye to become more myopic or less hyperopic. In such cases, the loss of vision at other distances is often overlooked because of the "improvement" in reading.

Fundamentally the exact causes of the senile cataract are unknown. There are a number of suggested causes, including changes in permeability of the lens capsule, changes in the lens proteins, excessive efforts to accommodate, effect of radiant energy on the lens, inadequate nutrition, and systemic disorders such as Diabetes. Surgery at present is the only effective treatment for cataract.

Glaucoma is defined by Duke-Elder (1941) as "that pressure which the tissues of the particular eye in question are unable to withstand without damage to their structure or impairment of their function." Of all ocular pathologies, glaucoma is most important to both the optometrist and ophthalmologist, because it is hardest to detect in early stages, and may eventually result in total blindness.

It is estimated that 1 per cent to 2 per cent of patients over the age of 40 have glaucoma, that there is three times as much simple

glaucoma as acute, that the greatest incidence of adult primary glaucoma occurs in the 60-70 group (although it should be investigated in persons over 40), that males are somewhat more prone to simple glaucoma than females, but females show a definitely higher incidence of acute glaucoma.

Acute glaucoma is seldom found in myopic patients, but chronic simple glaucoma has an incidence which is unrelated to refractive error.

It is generally agreed that heredity may play a role in glaucoma. In a report by Posner and Schossman (1949) of 373 patients with primary glaucoma, 51 had one or more relatives afflicted with the same disease.

Unfortunately, symptoms are not easily detected clinically, except in acute glaucoma where the patient may complain of such symptoms as pain or headache over the eye, visual disturbances or haziness, the seeing of halos around lights, and the seeing of flashes of light.

Other than from diseases, many studies show that loss of visual acuity occurs naturally with age. In the healthy normal adult this loss is very slight, but nevertheless a very real one that often interferes with the aging person's regular activities.

Along with age usually comes a steady decline in the ability of the eyes to resist glare. This creates a problem especially in night driving for a person over the age of 60.

CONTACT LENSES FOR THE OLDER PATIENT

The development of the micro-corneal (small) lens has inspired a great popularity in the wearing of contact lenses. Today, approximately 4 million persons are wearing them, as compared to less than 200,000 just six years ago. The majority of today's wearers are females, estimated to be about 60 per cent of the total. The great majority are also younger persons, and most are first attracted to contact lenses for cosmetic reasons. In males, it has been found that because of the wide field of vision and the safety and convenience values with contact lenses, they are used a great deal to advantage for sports. Aside from sports and cosmetic uses,

there are also benefits in wearing contact lenses for certain vision conditions. Those suffering from keratoconus, irregular astigmatism, corneal scarring, aniridia and monocular aphakia are offered an opportunity through contact lenses to find dramatic improvement not possible with ordinary glasses.

Of the patients coming to contact lens specialists, 47 per cent are under 25 years old, 45 per cent are between 25 and 40 years old, and only 8 per cent are over 40 years old. The lack of cosmetic incentive to improve one's appearance, a failure to appreciate the optical and physical advantages, and an unwillingness to be inconvenienced during the adaptation period, are no doubt prime reasons for the lack of popularity of contact lenses with older people. Another strong deterrent is the fact that many of these people are presbyopic, which requires glasses in addition to their contact lenses for near-point or reading vision. There are a number of types of bi-focal contact lenses now on the market, and others are in the process of being developed. It is hoped that eventually the advantages of bi-focal correction will be available in a generally acceptable contact lens.

The most spectacular use of contact lenses in later maturity occurs after cataract operations. They are generally superior to spectacle corrections for aphakic patients. Their greatest advantage lies in the fact that they practically eliminate all aberrations found with regular glasses, mainly because they move with the eye, rather than the eye moving behind the lens. From a cosmetic viewpoint, the contact lenses do not give the highly magnified eye appearance that the heavy-plus spectacles do, because of the latter's thick convex lenses. The thickness and weight of aphakic spectacle corrections often cause discomfort to older patients, especially during warm weather. Contact lenses for these same people are light in weight, and found to be comfortable once the patient has become adapted to them. Generally, the older aphakic patient becomes adapted to contact lenses faster than the young person, probably because of reduced corneal sensitivity from the incidental severing of some of the corneal nerve fibers during the cataract operation.

The future of vision correction through the use of contact lenses opens vast new areas of progress for the aging as well as for the young.

PARTIAL VISION AND OPTICAL AIDS

The degree of visual acuity in the past was the basis of the three classifications of sight. In the normal range was anyone whose vision checked out at 20/70 or better (the first figure represents the distance in feet at which a line of letters on an eye chart is read, while the second figure represents the distance at which it should be read by a person with "normal" vision). In the second group, called "sub-normal", were those with vision 20/200 or better and less than 20/70. The third was composed of those with vision less than 20/200, and this was called "blindness".

Although this arbitrary classification served a useful purpose in problems relative to vision, a more reasonable approach is one based on the positive aspects of vision. This indicates how much a patient can see in contrast to his loss, rather than vice versa. It is acknowledged and agreed that from "above normal vision" to "blindness", there is an entire range of vision possibilities. Any vision, no matter how much below normal, is an advantage, especially if it can be corrected to provide more useful sight. The preferred term of classification of deficient visual acuity might be "partial vision", rather than "sub-normal vision" or "blindness".

Practically everyone with vision desires to use the eyes in perception. And with modern techniques, it is the rule, rather than the exception, that partial vision can be improved with optical aids. This is a great boon to the senior citizen, for as he gets older, more and more of his self sufficiency is dependent on vision. Most of the ability to use the knowledge and adeptness gained from a lifetime of experience is controlled by the eyes even though in their uncorrected state they might offer only partial vision.

From a legal standpoint, the difference between "blindness" and "vision" is strictly an arbitrary one based on the presence

or absence of useful vision. The fallacy of identifying limited vision as "blindness" becomes more evident when the following fact is considered - Only 25 per cent of the "total blind" people have no perception to light, while the remaining 75 per cent have varying degrees of useful vision, from the bare minimum capable only of giving guidance, to sufficient amounts to allow reading. Many of the senior individuals heretofore classified as "blind" have found that what vision they do have can often be mobilized and made more efficient through the use of various optical aids developed by research in optometry. It is for this reason that the diseases and anomalies that cause impaired vision are of deep concern to the modern optometrist.

One of the problems to be coped with by the ophthalmic professions is the "shock" that occurs when an aging person learns that his vision has become impaired. Much of this is due to a lack of understanding or lack of information as to the tremendous strides that have been made in correction and aid.

In perception, those with impaired vision (especially those requiring optical aids) find a problem in habituation and automazation . . . getting used to the new visual demands, so to speak. It is a matter of changing one's habits in order to use new "vision". This is especially difficult in reading and writing where so much is based on making use of "visual cues" (scanning and tip-off words). Until the individual learns to use his optical aid and automatically "see" without requiring conscious analyzation and interpretation, vision is restricted.

Another major problem for the partially-seeing individual is an inadequate rate of perception for meaningful comprehension in reading. It is not at all uncommon to have the rate of perception reduced to individual letters. And since effective reading requires recognition of a group of letters as a word, a group of words as a phrase, a group of phrases as a sentence, and a group of sentences as a paragraph, those with partial vision find reduced ability a difficult handicap, until proper and effective optical correction is made.

Mobility, the capacity of facility for movement is another essen-

tial function that creates a problem for the visually handicapped. Mobility has two components: mental orientation and physical locomotion. Lowenfeld (1950) defined mental locomotion as the "ability of an individual to recognize his surroundings and their temporal or spatial relation to himself", and locomotion as "the movement of an organism from place to place by means of its organic mechanism". Both are essential.

One of the greatest handicaps to the aging person is the loss of mobility. It is considered by many as the most severe single effect of the loss of sight, and creates conflict and frustration. But although good vision is desirable for mobility, it is not always necessary. Even limited sight, skillfully used, maintains orientation and mobility. As a general rule, if visual acuity is better than 20/400, there is little restriction of mobility.

Magnification makes it possible to correct or increase the resolving power of the eye by increasing the size of the retinal image. This is the basis of most compensating lenses. For example, if the best visual acuity of an individual is 20/80, the relationship makes necessary a magnification of 4-times if the individual is to see normally. Correction can be made in only three ways: by decreasing the distance of the object from the eye, by increasing the size of the object (as enlarging the print in a book), and by angular magnification through the use of one or more lenses in front of the eye.

A COMMUNITY RESPONSIBILITY

With the trend moving toward a population of older people in our society, it is only natural that aging has become a community responsibility, as well as an opportunity.

There has been a growing interest in the older citizens, in hundreds of communities throughout the United States. This in turn has been transformed into activity designed to cope with the challenge of aging.

All of our fifty states have now established commissions or committees on aging. Scores of conferences have been held, and geriatric organizations and meetings are becoming more prominent.

The American Optometric Association and many individual optometrists are deeply active, for good vision is a deterrent to many of the worst handicaps of age.

Because optometry's interest is so keen and its function so important in alleviating problems of the senior citizen, it is only natural that many community projects are spear-headed by local and state optometric societies. Among those that have proved successful are:

Community Clinics For The Partially Sighted

Community vision screenings are conducted at no cost to patients. This is a valuable community project because it enables aged individuals who have reduced or limited incomes, because of their physical limitations, to get good vision care.

Many of these clinics are conducted in cooperation with the public health department, service clubs, and other organizations. Vision clinic programs can be arranged in most communities upon request.

Senior Citizen Plan For The Indigent Aged

This is a community project in which citizen's groups and local optometrists cooperate for the welfare of the community's indigent aged. The citizen's groups contribute ophthalmic material, while the optometrists contribute their time. This is a very valuable combination that can benefit a large number of otherwise neglected senior citizens.

Eye Care Programs For Homes For The Aged

As the title suggests, this program is designed specifically to benefit aged individuals in nursing homes, and shut-ins. This is particularly valuable in smaller communities and smaller homes where regular staff optometrists are not retained.

Where this program operates, local optometric societies provide a panel of local optometrists, who are made available to provide visual screening services for the homes. They also offer consultation as to methods of

improvement of lighting conditions, general environment, types of printed material to be provided for reading, and other services helpful to comforting and aiding the partially sighted or blind aged patient.

Public Information

One of the major problems facing any profession is education of the general public to facilities that are available. The more specialized the profession, the greater the problem. It has been found that the general public is usually several years behind in receiving correct information concerning vision care. Often the information is misconstrued or misinterpreted. There are times, too, where the public believes baseless information from an unreliable source, often nothing more than opinion or superstition.

To counteract the lack of reliable information, the American Optometric Association, through its Committee on Vision Care of the Aging, has established a special panel program available for meetings, radio, and television. Available to service clubs and citizen groups, as well as through the broadcasting media, the program presents information in an interesting and easy to understand manner.

Many optometric societies are also active in providing exhibits for meetings and programs sponsored by various senior citizens' organizations, hobby clubs, county and state fair boards, and other groups interested in the care of the aged.

Material and equipment, such as telescopic spectacles, glaucoma screening devices, books and articles on vision care, vision aids for the partially seeing adult, and specialized and unusual types of lens corrections, are shown. This affords the community an opportunity to see a wide variety of the latest ophthalmic devices.

The programs listed above are currently being used in various communities throughout the United States. Unfortunately, a lack

of manpower and funds has prevented their adoption in all communities. In many instances, optometric societies have spearheaded such projects, and have volunteered the services of their members. Most optometric societies will assist in any good vision program that provides general benefit to the aged.

RESEARCH

Basic research into new methods and techniques in vision care for the aging is at an all-time high. Many public and private organizations are conducting projects or clinical studies to improve and retain the vision of our most valuable generation — our senior citizens.

For the past several years, The American Optometric Foundation has sponsored research fellowships in major colleges of optometry. It has been estimated that at least 30 per cent of the Foundation's research has been directly related to the study of vision of the aging patient. Among the projects of major importance now under way is an investigation of motorists' vision, part of which is devoted to the problem of night vision of the aged driver.

The American Academy of Optometry has also been quite active. Each year it conducts a program devoted to encouraging the presentation of research papers by practicing optometrists and faculty members of optometric colleges.

In a recent program, over 20 per cent of the papers presented related to vision care of the aging patient. Subjects of research were varied, ranging from a longitudinal study of refractive changes with age, to a discussion of special refractive techniques for decreased vision problems in the aged.

The National Health Institute has issued grants to some optometry schools in order to further research. As in most other professional fields, the big problem still remains — attracting sufficient numbers of well-trained persons to conduct studies in the field of aging. This is not an easy task, and is greatly dependent on our newly awakened public interest. The stimulation of additional funds for use by qualified teams of researchers in optometric colleges is a big step.

Each new year brings great strides of accomplishment and new hope to the aging, thanks to research in vision. Past research has given optometry a fruitful beginning into understanding the problems of vision; current research will serve as the road to complete understanding. Gratefully, the aging person may look forward to several more decades of productive, "seeing", alert years — all because of the vision progress being made through research.

SUMMARY

America has entered into a new phase of social development. Greater life expectancy and a rapidly increasing older population has created new problems, more challenges, far greater potential for national growth and development.

Since 1900 the number of men and women over 65 has increased $4\frac{1}{2}$ times, while our total population has little better than doubled. Approximately 1 out of every 12 people are over 65, a total of about 15 million. By 1975, it is estimated the total will reach 21 million people. Another 40 million men and women are between the ages of 45 and 65. This means that almost 50 per cent of our population is over 40.

Our country's great strength lies in our aging and aged. Here lies a vast and growing reservoir of energy and experience. Harness this power through unhandicapped vision give it expression, dignity and independence, and it becomes an asset. Allow it to degenerate, vegetate and become dependent, and it becomes a liability.

Our age of mechanization and automation has afforded a rise in our standard of living, but it has also increased the amount of leisure. Work has become more specialized requiring greater visual efficiency, leisure time has become broader, requiring better visual acuity for true enjoyment. The frequency of retirement has increased, while age of retirement has decreased, requiring adequate visual acuity to keep the older person occupied. With these new-found "leisures", many older people are making use of their freedom from family and work responsibility. But many find themselves having the desire, but being hampered by visual defects. The un-

fortunate part of it all, is that this is a period of life when the person has the experience, knowledge and desire to enjoy life to the utmost, and offer more to humanity.

Perhaps one of the most tragic aspects of old age is feeling dependent, lacking a sense of self-sufficiency, feeling as though not wanted. Much of this lack of confidence is the psychological results of physical handicaps, often those in the vision category.

Through research and development, optometry has surged forward to find new ways and means to keep the visual facilities comfortably active longer. Optometrists discovered long ago that they must prescribe not only for the task but also for the mode of life. This is being done more and more in order to aid the senior citizen. Bifocals, multifocals, coated lenses, light and environment studies, hardened lenses, microscopic lenses and contact lenses, among other optical aids, are serving to prolong the "seeing" life of the aging person.

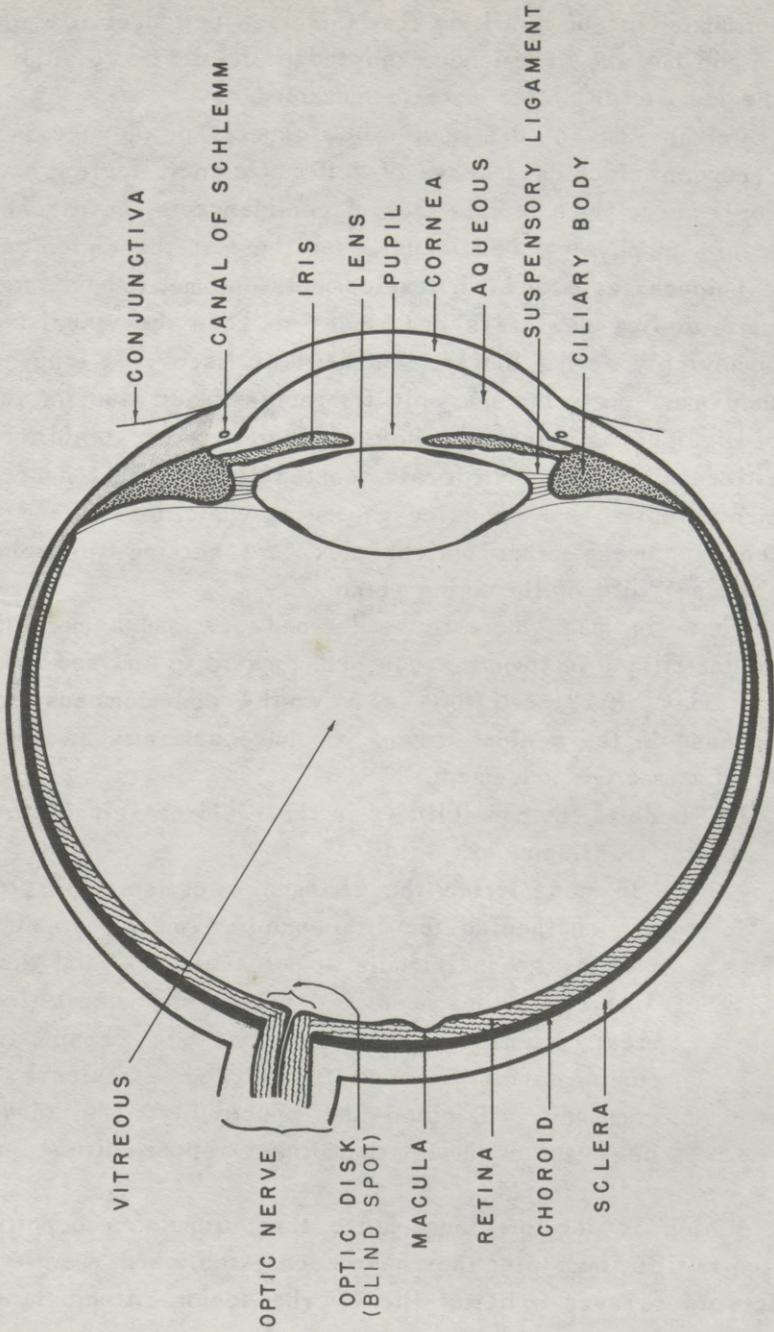
There is much more to be learned . . . much more that the senior citizen of tomorrow can look forward to and see than those of today. But the effort is a worthy and compensating one, because in the senior citizen, you have humanity at its highest level of mature judgement.

In "Federal Responsibilities in the Field of Aging", President Dwight D. Eisenhower said:

"In considering the changed circumstances presented by lengthening the life span, we must recognize older persons as individuals — not a class — and their wide differences in needs, desires, and capacities. The great majority of older persons are capable of continuing their self-sufficiency and usefulness to the community if given the opportunity. Our task is to help in assuring that these opportunities are provided."

Vision is the precious sense that stimulates opportunities, and fulfills them after they have been established. We are looking forward to even a better life for the senior citizen through improved vision.

HORIZONTAL SECTION OF AN EYEBALL



YOUR OPPORTUNITY AS A LADY O.D.¹

It was hard to believe—it seemed impossible that such a complete change could be accomplished with such dramatic suddenness. But it happened just that way, before your eyes—and his.

As a woman optometrist—a "Lady O.D."—it is only natural that many of your patients are youngsters, with seeing problems much the same as those of adults, except that they take a little more understanding, patience, and a softer approach.

This young man of 9 was brought to you by his parents because of some troubles he'd been having. His high intelligence and his mediocre grades in school didn't match up. He was backward in sports, although he tried hard. He was shy and had few playmates. He frequently bruised himself by running into things—accidents which always seemed to occur in strange, poorly lighted places.

The school nurse suggested that his parents bring him to you. Upon examination, you found his problem was not seeing properly, a serious problem if left alone, but one easily corrected with professional care.

You recommended. The parents consented. The wheels turned. A few days later you put a couple of small pieces of optical glass before his eyes, and the transformation took place. His eyes lighted up behind those bits of glass like the bright and shiny Christmas tree that he would see clearly this year for the first time.

All this, because you are a woman optometrist who works with sight, the most precious of all senses. You are trained to practice the scientific miracle of helping people see the things that are around them. This is your chosen profession. It has been rewarding—has given you the satisfaction of serving fellow men.

Before you became a Lady O.D. and hung up your license, you had many decisions to make. You wanted a career where a woman's opportunity would be on par with a man's; you found this in optometry. If you were to enter a profession, you wanted one in which its members and the public accepted the woman: you found optometrists actually were inviting more women to join their profession. You wanted a profession where many women are already making their way, one affording specialties or areas of work particularly opportune to a woman and in which she can be as equally adept as men. In optometry you found that you could.

It's thrilling to practice optometry in your own office and build your own professional identity. The opportunity to work in a consulting and advisory capacity with psychologists, regular and special teachers, and guidance clinics offers a constant challenge. There is particular excitement in rendering the optometrist's unique service to a child with learning problems.

Such a career was chosen by the Lady O.D., Dr. Anita Eberl of Milwaukee, Wis., who says: "There are few professions in which women are accepted on a par with men, and still fewer in which a woman can be absolutely independent. For me, optometry has met these goals."

Establish your own practice. Or, join others in an already established practice.

Many young optometric graduates wish to join other professionals in an established practice. Opportunities exist in this direction for the Lady O.D. Across the country, successful practitioners are reaching out for young optometrists to join them, preparing in many cases for successors in the years of retirement.

Another outlet for the young lady professional is an entry into a growing realm of activity—group practice. She might join other optometrists to serve the public from a single group of offices, or join with other health service practitioners in a clinical setting to treat many physical problems.

Or, specialize in vision care for children.

Optometrist like her father and proud of her professional heritage is Dr. Ruth Winkler. This Lady O.D. of Tulsa, Okla., says her life assumes great importance when she works with "young eyes that need visual help and visual training."

Among outstanding child specialists is Dr. Lois B. Bing, consulting optometrist for public schools in Euclid, Ohio. "Working with children has been a goal of mine since early life. It provides a real satisfaction, for, through vision tests and care given each day to schoolchildren, I know I am helping many youngsters

¹ Doctor of optometry—profession with a future for women.

meet the challenge of education, and on to happier, fuller lives ahead," says Dr. Bing.

Combine your skills with social service.

Such has been the choice of Dr. Elizabeth E. Caloroso, of Glendale, Calif., who spends a major part of her professional life working with people with social and financial problems in addition to their ocular ones. Her interest in public service is summed up this way: "There is little equality in the contents of wallets or bank accounts. But much of the world's beauty and many exciting happenings are free for the seeing. I am happy to make the world available to those in need."

Or, be a teacher of optometry.

Across the Nation, colleges and schools of optometry have given Lady O.D.'s the chance to combine that profession with a love for teaching. Dr. Margaret Dowaliby, associate professor in clinical optometry at the Los Angeles College of Optometry, says, "This is a wonderful association for a woman. Working closely with students and other faculty members leads me to many friends, social and professional. Watching our young graduates go on to make their ways professionally, rising as leaders in their communities and making lives more enjoyable for the public they serve, is the teacher's great reward. Optometry has equipped me with two professions: teaching, which is my first love; and a private practice enabling me to share the subsequent valuable experience with my students."

These examples from real life illustrate a few of the professional avenues open to the woman optometrist. But this career opportunity holds many other special appeals for women. Take Dr. Dortha M. McCoy of Wichita, Kans., who says: "As a professional in a community like Wichita, I have many opportunities to be of service. There are so many things to be done and not enough people who want to do them. Optometry has given me a full, professional career with enough time left to pursue outside activities to the fullest. In fact, I am certain my professional background provides the springboard into the multitude of community services and activities which I so thoroughly enjoy."

This comes from a lady O.D. who is a member of her National, State, and local optometric group and is a member of a standing committee for the American Optometric Association. She serves her own community through her sorority, her church, and her service club of which she is past president and district vice governor. She finds herself in constant demand as a public speaker. Her example illustrates professional standing—community leadership—hand in hand.

HUSBAND-WIFE PROFESSIONAL TEAM

Drs. Ruth P. and Warren G. Morris of Toledo, Ohio, illustrate the married couple in optometry. They graduated from the Ohio State University School of Optometry and set up their office in Toledo.

Dr. Ruth likes to talk about the husband-and-wife aspects of their profession: "Lots of married couples would give anything to be able to work together and we're lucky to be set for just that as long as we wish. I have my patients. He has his. And some come into the office to ask for either of us. We share the same interests around the clock and, thanks to optometry, my own financial security has enabled me to employ help to take care of the homemaking chores I dislike and I've enjoyed the other household duties as a desirable hobby."

Optometry offers an outstanding career for women.

In a growing nation, uncrowded optometry will need approximately 27,000 practitioners by 1970. A woman optometrist can set up a general practice, affiliate with an already established practice, or she can specialize in one of many fields. She can work the years that seem best suited to her, take leave for parenthood and return when she wishes.

The minimum 5-year college training in optometry is the way to a world of professional standing and income. Throughout her training and her professional career, the lady O.D. is accepted and treated as an equal by her male colleagues. For this is a field in which women as well as men are both needed and wanted. It is an exciting, challenging, rewarding, and dynamic profession of service to people.

If this booklet makes you want to know more about the opportunities in optometry, write to the American Optometric Association. Ask for the brochure, "Planning Your Professional Career in Optometry," which lists colleges and their entrance requirements, shows figures on potential income, and describes fully the opportunities awaiting both men and women in this rapidly growing profession.

OPTOMETRY SEEKS BRIGHT YOUNG MEN AND WOMEN WHO ARE LOOKING FOR A
REWARDING, EXCITING PROFESSIONAL CAREER

In a growing America (213 million population by 1970) professional people are increasingly in demand. Begin to prepare yourself now.

Thinking about a career which will provide you and your family with a livelihood is only the starting point. You will want that, and in fair measure, to be sure. Consider also the hours a career will demand of you, the time it will leave you to spend with your family, and whether those hours will be controlled by you or someone else.

Consider the satisfaction of serving people, and of the prestige and respect such service may gain for you. Think of the health factor, your own and that of the people you will be serving. For each type of career in your thinking, consider surroundings in which you would expect to work.

Query your optometrist on these many considerations, and learn firsthand about the attractive and rewarding professional career optometry offers you.

Here is a scientific field devoted to the conservation and correction of man's most precious sense—vision. The human eye has evolved over a period of half a billion years. Next to his brain and heart, the eye undoubtedly has helped man to become the highly sensitive and miraculously adaptive creature that he is. Beyond helping to bring him many advantages in his creative work, the eye also adds to man's pleasure of being alive—because he can discern shape, color, and dimensions which bring a world of beauty into focus.

When you are serving, helping people, giving relief and care to the eyes of the aged, aiding the middle aged to see better, opening a child's eyes to the wonders about him, offering counsel and help when youngsters have reading problems—when these become your daily experiences, you will know the great rewards and inner satisfactions which characterize this inspiring field of optometry.

FINANCIAL RETURNS ARE GOOD

The income of an optometrist is limited only by his professional skills and the efforts he puts forth. His income should equal that of other professional men in his chosen community. It is not uncommon for an optometrist to produce an annual net income of \$11,000, the 1958 average, after a few years in practice.

These are financial returns from a profession where you are in command of your own office and time, can set appointed hours for persons to come to you for services, can arrange your calendar to include regulated vacations, and where you do not face forced retirement.

OPTOMETRY CURRICULUM

College level subjects in which you would become adept include:

Ocular anatomy—which gives you knowledge of the structure of the eye.

Ocular pathology—which provides the knowledge to recognize diseases in the eye.

Physiology—a study of the body's normal functions.

Psychology of vision—provides knowledge of the mental processes involved in seeing.

Physics and mathematics—to provide knowledge of light and the effect of lenses on light.

Physiological optics—provides knowledge of the function of the visual mechanism.

Geometrical optics—knowledge of lenses.

Mechanical optics—knowledge of ophthalmic glass, lens grinding, adaptation, and fitting.

Theoretical optometry—knowledge of the principles of examination and refraction.

Practical optometry—knowledge of the procedures and techniques of examination, refraction and analysis—to determine your patients' visual status and needs.

Human anatomy, bacteriology, biology, and chemistry—through which you acquire knowledge of bodily functions and changes.

General pathology—by which is acquired knowledge of the relationship of bodily disorders to vision.

Visual training—to help you reeducate and develop the visual skills and ocular coordination.

Measurements of fields of vision—by which you can detect signs of actual or impending pathology.

Fitting contact lenses—by which you adapt modern “invisible” lenses fitted over the eyeball and under the eyelid.

Vision for education—by which you are enabled to safeguard the vision of a child and assist him in learning.

Vision in industry—by which training you can work for ocular efficiency for safety and productivity.

Telescopic spectacles—by which training you can aid the visually subnormal. As you can see, many fields of service are open and waiting for you.

COLLEGES

The following colleges can prepare you for your career in optometry and your State board examinations in the State of your choice:

Illinois College of Optometry, Chicago, Ill.
 Los Angeles College of Optometry, Los Angeles, Calif.
 The Massachusetts College of Optometry, Boston, Mass.
 Ohio State University School of Optometry, Columbus, Ohio.
 Pacific University College of Optometry, Forest Grove, Oreg.
 Pennsylvania State College of Optometry, Philadelphia, Pa.
 Southern College of Optometry, Memphis, Tenn.
 University of California School of Optometry, Berkeley, Calif.
 University of Houston College of Optometry, Houston, Tex.
 Indiana University Division of Optometry, Bloomington, Ind.
 College of Optometry of Ontario, Toronto, Ontario, Canada.

EMPLOYMENT OUTLOOK FOR OPTOMETRISTS

U.S. Department of Labor, Bureau of Labor Statistics

OPTOMETRISTS

(D.O.T. 0-39.92)

NATURE OF WORK

Optometrists examine eyes and perform other services to safeguard and improve vision. They use special instruments and tests to find and measure defects in vision and, when needed prescribe eyeglasses, contact lenses (invisible lenses), and eye exercises or other treatment that does not require drugs or surgery. Most optometrists supply their patients with the eyeglasses prescribed, though some do only minor repair work, such as straightening frames or replacing nose pieces on glasses. A few optometrists specialize in work such as fitting persons who are nearly blind with telescopic spectacles, studying the relationship of vision to highway safety, and analyzing lighting and other conditions that affect the efficiency of workers in industry or business. A few are engaged primarily in teaching, research, or a combination of the two.

Optometrists should not be confused with ophthalmologists, oculists, or dispensing opticians. Ophthalmologists and oculists are physicians who specialize in the medical and surgical care of the eyes and may prescribe drugs or other treatment, as well as lenses. Dispensing opticians (see index) fit and adjust eyeglasses according to prescriptions written by ophthalmologists or optometrists; they do not examine eyes or prescribe treatment.

WHERE EMPLOYED

Most of the 17,000 optometrists employed in 1962 were in private practice. However, some were salaried employees, working as assistants to established practitioners or for health clinics, hospitals, optical instrument manufacturers, or government agencies. A few taught in colleges of optometry or served as optometrists in the Armed Forces.

Optometrists are located chiefly in large cities and industrial areas, where many people are engaged in office work or other occupations which tend to create or emphasize vision problems. About 40 percent are in five States—California,

New York, Illinois, Pennsylvania, and Ohio. Many small towns and rural areas, especially in the South, have no optometrists.

TRAINING, OTHER QUALIFICATIONS, AND ADVANCEMENT

A license is required to practice optometry in all States and the District of Columbia. Applicants for licenses must be graduates of an accredited school of optometry and pass a State board examination. In some States, only graduates of certain schools of optometry are admitted to these examinations. A student planning to become an optometrist should, therefore, choose a school approved by the board of optometry in the State where he expects to practice. There were 10 schools of optometry in the country in 1963. Applicants with the necessary qualifications have an excellent chance of being admitted to one of these schools.

At least 5 years of college are needed to become an optometrist. The usual requirement is 2 years of preoptometry education in an approved college, followed by 3 years of training in an optometry school. However, completion of a 4-year course is required by some optometry schools after the 2 years of preoptometry study which are a prerequisite for admission. Preoptometry courses include mathematics, physics, biology, and chemistry, as well as English and other liberal arts courses. Students in schools of optometry have both classroom and laboratory work, as well as an opportunity to gain professional experience in the clinic run by the school. Most schools award the degree of doctor of optometry (O.D.), but some confer bachelor's degrees in science or optometry instead. Optometrists who wish to specialize often take additional training. A master's or Ph. D. degree in physiological optics or in a related field is usually required for teaching and research work.

A prospective optometrist should have a liking for mathematical and scientific work, the ability to use delicate precision instruments, mechanical aptitude, and good vision. In addition, to become a successful practitioner, he must be able to deal with people tactfully.

The majority of optometrists start either by setting up a new practice or by purchasing an established one. Some begin as assistants to established practitioners, and young graduates are frequently advised to do this in order to acquire experience and the funds necessary to equip an office.

EMPLOYMENT OUTLOOK

Employment opportunities for new optometry graduates are expected to remain favorable throughout the 1960's. During this period, the number of new graduates is likely to be considerably less than the number of experienced optometrists who retire or stop practicing for other reasons. As in the past, opportunities to set up a new practice will generally be best in small towns and in residential areas of cities, where the new optometrist can easily become known and where competition is not as keen as in large business centers. Communities, especially in the South, that have no optometric services available will also offer opportunities for new graduates. A good office location is of major importance for a successful practice. The optometrists should consider the number of optometrists and medical eye specialists in the vicinity, in relation to size, occupations, age, and income level of the population in the area.

Over the long run, the demand for eye-care services will continue to grow. The importance of good vision to efficiency at work and in school is becoming more widely recognized; eye strain has been increased by many aspects of modern living; and the use of eyeglasses has come to be generally accepted. The volume of eye-care services needed will also be increased by the anticipated growth in population, especially by the expected sharp rise in the number of older people—the group most likely to need glasses—and because of the growing number of people employed in white-collar occupations. Although the expanded demand will be met in part by medical doctors who are eye specialists, optometrists will continue to supply a substantial proportion of all eye-care services.

Women optometrists, who constitute about 5 percent of the profession, have many opportunities to work as salaried assistants in the field of visual training. Those in private practice have been particularly successful in work with children.

EARNINGS AND WORKING CONDITIONS

In optometry, as in some of the other health fields, a low income must be expected during the first few years of practice. As a practice becomes established, earnings usually rise significantly. In 1962, over half the optometrists

had annual net incomes between \$7,000 and \$20,000, according to the American Optometric Association.

Newly graduated optometrists employed by clinics or other optometrists earned an average weekly salary of \$160 in early 1963, according to the limited data available. Experienced optometrists generally received \$200 or more a week.

Optometrists practicing in towns and small cities have higher average earnings than those in large cities. However, some successful practitioners in big cities have very high incomes. Although optometrists in salaried positions may at first earn more than those who go into practice for themselves, the situation is likely to be reversed after a few years of experience.

Working hours in this profession are usually regular. Since the work is not strenuous, optometrists can often continue to practice after the normal retirement age.

WHERE TO GO FOR MORE INFORMATION

Additional information on optometry as a career is available from: American Optometric Association, 4030 Chouteau Avenue, St. Louis, Mo.

Information on required preoptometry courses may be obtained by writing to the optometry school in which the prospective student wishes to enroll. The board of optometry in the capital of the State in which the student plans to practice will provide a list of optometry schools approved by that State.

Dr. WALDMAN. Thank you. I am Dr. Nelson F. Waldman, a practicing optometrist in Houston, Tex., and chairman of the American Optometric Association's Committee on Vocational Guidance. I am also president-elect of the Texas Optometric Association. Optometrists fill a public health need which can be met from no other source than by utilization of their services. They supply two-thirds of all vision care to the general public of the United States, and in the Armed Forces this percentage is closer to 85 percent.

Most Americans requiring vision care are dependent on the availability of members of our profession. In addition, most preventive work in the field of vision care is performed by optometrists. Their services are essential to the health and well-being of the American people, the missions of the U.S. Armed Forces and of civilian space and other scientific endeavors, the production of vital military and related equipment and materials needed for national defense, and to the development of skills and the improvement of educational techniques among students and workers.

Optometry is the only profession specifically licensed in all the 50 States, the District of Columbia, and the outlying possessions of the United States to deal with refractive and visual anomalies.

Yet, just as demand on the optometrist's services expands, the number of optometrists is, in fact, declining in proportion to the population curve which is ever turning upward. So that when you read in the 1960 census figures that there are 16,044 optometrists practicing in the United States, and that this was a gain over the 1950 census of 9.6 percent, you have to keep in mind that proportionately our profession is declining. Incidentally, the same census revealed that dentists gained 10.1 percent and physicians and surgeons 18.9 percent in that same 10-year period.

We now have about 17,000 practicing optometrists for a population of 191 million—or 1 optometrist to every 11,250 Americans.

The accepted minimum ratio of optometrists to population is 1 practitioner to every 7,000 Americans. To reach that ratio and to provide the barest minimal vision needs for our people—civilian and military—we need 10,000 additional optometrists.

One reason why we must have more trained manpower is the growth in the older age group. The University of Chicago in a report predicts that by 1980 the number of persons 65 to 69 will exceed 8.5 million while those over 70 will number almost 16 million. Those age groups have great need of our services. The Better Vision Institute, following a canvass of 1,082 family units including 3,354 persons, reports that 100 percent of those 65 and over wore glasses.

We know that more practitioners are leaving the field—due to retirement or death—than are entering it, and that student enrollment is far below its post-World War II high. It has, however, been rising again slowly since 1958. We also know that too many of our practicing optometrists—49 percent—are 39 or older. We of the American Optometric Association are making a concerted effort to attract suitable young men and women into the profession.

But we are handicapped in our recruitment by two factors: No. 1, many of our prospective students lack the funds to attend optometry schools, and the schools have not sufficient funds to make loans to such suitable students. No. 2, because we are not included in the list of health specialists receiving Federal loans, many of those who consider optometry as a career believe that the profession is adequately staffed, perhaps even overcrowded, and, therefore, choose another field.

In the printed statement which you have before you, you will find some revealing incidents of self-help practiced by our profession to attract young people to it. But proud as we are of such examples, they are not enough on a national scale to provide funds for the students we need.

You will also find a very encouraging picture of the type of student we do attract.

Our Operation Manpower is paying off. Operation Manpower started in 1959 when the AOA decided that student recruitment was the No. 1 project. The following year its vocational guidance committee created a 5-year program called Operation Manpower designed as a blueprint for recruitment of students.

All segments of optometry—the AOA, doctors, schools, manufacturers, and suppliers of ophthalmic materials are cooperating in this hard-hitting program of career guidance and information. Each month we mail out *The Recruiter*, a bulletin which enlists everyone's support in Operation Manpower. I am providing a copy of the May 1964 issue for this committee's files.

But no such program can be completely successful until and unless the prospective student has the wherewithal to start—and to finish—optometry school. As it stands now, many qualified prospects find it impossible to enter optometry schools—others have to leave after the freshman year. A number of scholarships have been made available by various associations, societies, and institutions which are listed in *Scholarships in Optometry, 1964-65*, a copy of which has been supplied to this committee.

But the magnitude of the problem is such that we cannot meet the needs. That is why we feel that it is imperative for the future visual health and welfare of our people that optometry students be granted the same loan opportunities as our sister professions of dentistry, medicine, and osteopathy by the passage of H.R. 8546.

A favorable report by the committee on this legislation will greatly enhance our opportunity to protect America's most precious gift—vision.

Thank you.

Mr. ROGERS of Florida. Thank you very much, Dr. Waldman. We appreciate your testimony.

The next witness is Dr. Donald A. Springer, president of the American Academy of Optometry.

Dr. Springer, the committee will be glad to have your testimony.

**STATEMENT OF DR. DONALD A. SPRINGER, O.D., PRESIDENT,
AMERICAN ACADEMY OF OPTOMETRY**

Dr. SPRINGER. Thank you.

Mr. Chairman, members of the committee, I would like to thank you for the opportunity of appearing before you. I am Donald A. Springer, a practicing optometrist in Anniston, Ala., where I have been in practice since 1946. I am a graduate of the School of Optometry at the Ohio State University, in Columbus, Ohio. I am a past president of the Alabama Optometrist Association and at the present time president of the American Academy of Optometry.

I would like to say a word about the academy if I might. It is a voluntary organization of optometrists and other scientists in the field of vision who are dedicated to improving the professional, educational, and scientific standards of optometric service provided the citizens of this country.

I am speaking in support of H.R. 8546. My reasons for appearing in favor of this bill are several. One is that students contemplating entering this profession, as has been stated earlier, if the need arises will know that there are funds available that they can fall back on to complete their training. Another reason is that the profession is called up to supply optometric officers for all of the Armed Forces, and it has been a problem for us to recruit graduates to fill these slots. At the present time they are filled, but the demand increases each year.

Also, more States will be encouraged as several already have to provide scholarships in our field.

I think most important of my reasons is that the vast majority of the optometry graduates immediately go into private practice in small communities in rural areas, and as you gentlemen know, one of our problems is to provide health care services in rural areas and smaller communities.

This is the area that I feel the optometrist can serve the best in and where the need for him is greatest. But to do this, these men must establish either a new practice or purchase the practice of a retiring optometrist. But many of these graduating students, if they have been able to complete their optometric education, have depleted their own funds and oftentimes that of their family. Then we are faced with the situation of a trained man who is willing to go into a community where he is needed but he frankly lacks the funds to establish an office that is properly equipped.

I feel this legislation will enable these young people and their families to conserve part of their available funds so that they will have the necessary money to begin the practice.

The cost of establishing an optometric practice today is not insignificant. To properly equip a new office today will run in the neighborhood of \$12,000.

Now, this is easy to break down, and I have a list of equipment that one of the leading optical supply companies has provided me with that totals up to \$12,162. I have pictures here of some of the equipment such as the ophthalmic chair which runs \$2,800, projector chart which is around \$350, a troposcope which is a diagnostic and training device for binocularity problems which runs close to \$700, a radiuscope for contact lens analysis, a simple trial frame which, it is hard to believe, runs \$90 now.

A minimum possible setup for the new graduate will approximate \$7,000. This would be using secondhand equipment that is still functional, a minimal reception area, and so forth.

Now, I have not mentioned any of the special equipment that would be required for contact lens work. The diagnostic sets, and other devices to do this properly, will run \$700 to \$800. An eikonometer, which is a device for determining relative size of the two retinal images, a condition called aniseikonia, requires an instrument that costs over \$1,000; the new electronic tonometer, which enables the optometrist to most accurately measure the intraocular pressure of the eye, runs \$1,875. The figure \$12,000 truly is probably quite conservative.

I think all of you are familiar with a professional office. There is a reception area, a business area for the receptionist. In an optometrist's office he is required to have a room 20 feet long, usually without any windows, so that the illumination can be controlled. He needs a consultation room to discuss the problems with the family. He must have a frame area where the patient with supervision selects eyewear as to color and style. In the final analysis the optometrist, however, must make the ultimate decision as to the appearance of the glasses, and he must fit them to the patient's head after they are received from the lab, analyzed and approved.

Of course, after getting this large amount of money together to properly equip the office, the optometrist then must go through the period of establishing himself as any other professional man must. This period may take several months or it may take several years. Provision must be made for the optometrist to subsist in this small town during this period. This is probably the most critical time in an optometrist's career, and the reason I think discussing it is important here is that so many men go to these rural areas where they are needed but they do not have sufficient financial backing to remain there, and we find them becoming defeatist in their attitude, returning to the larger cities, seeking associations with established practices, and we are back in our situation of no one to serve the rural people.

I do honestly believe that passage of this legislation will help solve this problem, and I know that it will in Alabama. We have many counties that do not even have an optometrist, and I hope that you will give this favorable consideration because it is a tragedy when we train these men, certainly partially at public expense, and they are unable to engage in the proper practice of the profession.

I would just like to say for the record that I am very pleased that my Congressman, Kenneth Roberts, is the author of this legislation. I think it is another example of Congressman Roberts' interest in the public welfare of the people of this country. We are very proud of him, and off the record—

(Discussion off the record.)

Mr. ROGERS of Florida. Thank you very much, Dr. Springer. We appreciate that and, of course, are pleased to have a constituent of our very distinguished chairman of this subcommittee. You are right, he has done a great many things for the American people in the health field. And he was sorry he could not be here today, but he had very important matters that required his attention in Alabama.

(Dr. Springer's statement in full follows:)

STATEMENT OF DONALD A. SPRINGER, O.D.

Mr. Chairman and members of the committee, I am a graduate of the School of Optometry at Ohio State University, Columbus, Ohio, a past president of the Alabama Optometric Association and have been in practice since 1946 in Anniston. I am at this time president of the American Academy of Optometry. The academy is an organization of optometrists and other scientists in the field of vision who are dedicated to improving professional, educational and scientific standards of optometric services provided the citizens of this country. I am speaking in support of H.R. 8546, so that:

1. Students contemplating a rewarding professional career in which proficiency in the sciences is required will be more likely to consider optometry knowing it has been designated by our Government as urgently needing additional practitioners and that if he or she encounters financial difficulties Government loans will be available to enable them to continue their education.

2. The profession of optometry will be better able to fulfill an assignment it has undertaken to help the military services to recruit optometric graduates as commissioned officers, and

3. More States will be encouraged to join those which now promote through scholarships and other means the study of optometry by qualified students who have completed 2 or more years of preoptometric college work.

The vast majority of optometry graduates go immediately into practice in smaller communities where their services are most needed. They must establish private offices either in a new location, or by purchasing the practice of a retiring optometrist. Many of these graduating students have so depleted their own and their families' savings in completing their education that they find it virtually impossible to get started. The loan program which would be made available to our students by the legislation we are discussing would help them to conserve some of their funds for purchase of an older practice or for building a new practice.

Costs for establishing an optometric practice today are considerable. Instruments and equipment alone total approximately \$12,000. Here are pictures of only a few instruments needed by the new graduate. The optometric chair is sold by its manufacturer for \$2,800. The phoropter is priced at \$1,070. A project-o-chart can be purchased for \$325. The lensometer retails at \$575. The troposcope costs \$685. The radiuscope can be had for \$325. A trial frame, such as this one, is \$90. A field charting instrument will cost \$400, and a diagnostic instrument, like this one, sells at \$130. These are only some of the many instruments and items of equipment the modern optometrist must have in his practice today. The total cost of the few I have just shown you comes to a total of \$6,380; and we haven't mentioned a single piece of office furniture or listed one of the business machines which are needed.

The optometric office consists of at least three rooms, and the beginning practitioner often should have as many as six or more rooms each serving a different function. There is a reception and waiting room with a few chairs, a table, and a magazine stand, and perhaps a "kiddy corner" equipped with

toys and small table and chairs. The office assistant usually has her desk and files in this room so she can make appointments, receive patients, and prepare their records, handle the billing and correspondence, maintain the office book-keeping records, and the like.

(Speaking of optometric aids, I was pleased to learn from last Friday's Washington Evening Star that President and Mrs. Johnson's daughter, Luci Baines Johnson, is serving as an optometrist's aid to Dr. Robert Kraskin, an optometrist who practices here in the District. We hope it may influence her to become an optometrist as our profession is short of lady O.D.'s; less than 5 per cent of all optometrists are women.)

The second essential room is the refracting room. If it is well equipped with the many instruments needed for a modern optometric examination, this room is usually at least 20 feet long and windowless, so that its illumination can be controlled. Sometimes this room includes a desk, filing cabinet, and bookcase, so that it can serve as the optometrist's personal office and consultation room for discussions with patients and their families. Often, however, the office-consultation room is separate from the refracting room.

A third basic room is the dispensing or fitting room, where patients select their spectacle frames from an assortment of various styles and colors. Either the office assistant or the optometrist may aid the patient in this choice, but the optometrist makes all the necessary measurements to assure a comfortable and properly fitting frame. Later, when the spectacles have been received from the optical laboratory and verified for accuracy, they are fitted and adjusted to the patient's face. Adjacent to the dispensing area is a small laboratory room or area equipped with tools, instruments, and a supply of frame parts, where spectacles are repaired and assembled. The laboratory may include machines for cutting and edging lenses to be mounted in spectacle frames.

The graduating optometrist may need a separate room especially equipped and used exclusively for the fitting of contact lenses. Another room may be devoted to visual fields examinations and other special testing procedures. If the optometrist, such as Dr. Kraskin, whom I have mentioned as one of your local optometrists, does vision training in his practice, he will have a separate room for the instruments and materials needed for this type of vision care.

While the equipment and instruments I have described, may be reduced somewhat, the optometric procedures available would be reduced proportionately. The recent graduate is also faced with other initial costs of opening an office—decoration, insurance, licenses, announcements, etc.

After founding his office, the new optometrist is immediately faced with meeting the high costs of living while his practice grows and becomes self-supporting. This period may be many months but it is often several years. This time is the most critical time in the young optometrist's professional career.

The last economic study which obtained data on the net income of optometrists was made by the American Optometric Association in 1958. At the time, the average net income of optometrists 28 years of age and under was \$4,450. At today's income level I would estimate that the new graduate would be fortunate to receive more than \$2,500 net during his first year of practice, and \$5,000 for his second year. These are bare subsistence requirements in our modern American economy.

Federal loans during the students years of education will enable many students to enter practice more economically self-sufficient. There will be fewer young optometrists returning to the larger cities seeking association with older and better established practitioners. This failure to stay in the smaller communities is a serious problem and particularly in my State of Alabama. The smaller community, in my opinion, is where the optometrist is needed most and can best serve.

I have been associated with optometry all of my life. My father is an optometrist. I have watched many of the developments in the profession and have seen evolutionary changes take place. I have known and seen hundreds of young graduates enter practice. It is a tragedy when we train these men and they are unable to engage in proper practice due to lack of adequate funds.

I am proud that my Congressman is author of this legislation (H.R. 8546) which is so important to the public interest.

I urge that you give it your most favorable consideration.

Mr. ROGERS of Florida. The next witness is Dr. Frank M. Kitchell, vice president of the American Optometric Foundation. Is he here?

Dr. CHAPMAN. No.

Mr. ROGERS of Florida. We will file his statement, then.
(Dr. Kitchell's statement in full follows.)

STATEMENT OF FRANK M. KITCHELL, O.D.

Mr. Chairman and members of the committee, my name is Frank M. Kitchell. I am a licensed optometrist, engaged in private practice in Hempstead, N.Y., and am senior vice president of the American Optometric Foundation.

The foundation is a nonprofit organization, organized in 1947, and composed of approximately 2,600 optometrists throughout the United States. Its founders had several objectives. The most important and most urgent was to sponsor research in optometry. The profession realized then, as it does today, that the advancement of this profession will rest to a large extent upon research. Vision care is and must be a dynamic science; it cannot stand still; it deals with man's most valuable possession—his ability to see which largely enables him to be a dynamic part of his civilization.

Over the past 16 years, the foundation has awarded numerous fellowships to deserving students; most of them receiving their Ph. D. and now engage in teaching and research. These fellowships were paid for solely through voluntary contributions made by optometrists. The individuals who received those grants were not the only deserving applicants. There were many others. But foundation funds were and are limited. Lack of funds has hampered our progress in optometry. And it has prevented us from adding to those in our profession who have earned a Ph. D. Their number is far from sufficient for the needs of the profession itself and of American industry.

We do not begrudge industry its share of our Ph. D.'s. In fact, we are glad that our profession can and does make a contribution to industrial safety and efficiency. But we must have sufficient men with advanced degrees to do research and teach in our schools.

Parenthetically, it is only the graduate schools of the major universities with optometric training programs which supply teachers and researchers with the advanced degrees in physiological optics. These Ph. D.'s are found not only in industry but also in military installations and health service clinics. They occupy teaching positions in various departments of universities—medicine, physiology, psychology, and physics.

To train these men, to give them an opportunity to obtain the highest degree in our profession, is a costly undertaking for the schools—and for the students. Optometry has supported its own all along—to the limit of its capabilities. But the limit is far short of our requirements. The demand for trained men in all health fields is rapidly, even alarmingly, increasing. I have represented the American Optometric Association at the National Health Council meetings for the past 3 years—and the statistics they gave us at those meetings gathered from 50 health professions, certainly demonstrated graphically that growing demand. What is true for the other health professions is true of optometry: We must have more researchers, teachers, and—since everything must start with a source—students.

It is quite difficult for a good many students to finance even their undergraduate professional study. This problem becomes vastly more difficult when they attempt to obtain a doctorate. They have to be willing to make great sacrifices to obtain advanced degrees; they must be dedicated men and women. It takes the candidate 7 or 8 years to earn a Ph. D.; meanwhile he may be married, have a family, and yet must live on a pittance, for he can rarely afford to take enough time off from studying to earn money at an outside job. Even the man who goes into optometric practice after finishing the 5- or 6-year course—depending on the school he attends—has a much harder time financially than the medical doctor who at least earns some money right away during his internship. The optometrist establishing himself in his own practice cannot count on a particular income; in fact his income for the first 2 years is likely to be no more than \$5,000. Meanwhile he has quite an investment in equipment, and the rent has to be paid.

At this moment, we have eight applications for fellowships. Our funds allow us to give out only three. And this at a moment in history when we badly need more educators.

During the past 4 years the foundation has expended approximately \$10,000 annually in grants to its applicants. Small amounts, surely, for a big job.

Small amounts when you consider the urgent need for more highly trained men. Now, there was an article in the *Optical Journal-Review* recently concerning eye research. It reported the findings of a survey conducted under sponsorship of Research to Prevent Blindness, Inc., a voluntary, medical research foundation, by Dr. Thomas D. Duane, head of the department of ophthalmology at Jefferson Medical College in Philadelphia.

Dr. Duane says that the number of scientists engaged in eye research must be increased by 75 percent in the near future, the number of supporting personnel by 65 percent.

There must be a large expansion in laboratory space—415 percent according to Dr. Duane's survey—which will cost some \$15 million. A minimum investment figure for new equipment: \$10 million. And the number of electron microscopes must be doubled.

These are the suggestions Dr. Duane put before the Labor, Health, Education, and Welfare Subcommittee on Appropriations of the House of Representatives, calling on the Federal Government to double its support of eye research.

Of course research is important. But so is trained manpower. Optometry is aware of its responsibility to do research to further the cause of vision care. But it is also aware of the fact that you must have a steady—and increasing—body of students from which pool you can eventually draw researchers and educators. There is no river without its source; there is no profession without its students who will be tomorrow's teachers, practitioners, and researchers.

And I am proud to tell this committee that there is no dearth of applicants for optometric college training nor of interest on the part of young people in optometry.

For example, in April 1964 alone, the American Optometric Association received 305 requests for information; while during the period May 1963 to May, 1964, it received a total of 2,196 such requests.

And we know that there are far more applicants in every college and university than—barring financial aid for the student—they can possibly accept. For example, by early May of this year, Southern College of Optometry of Memphis, Tenn., had already 400 applications for the 1964 winter semester. In recent years, Southern's acceptance ratio has been 1 out of 3 student applicants; last year the ratio increased to 1 out of 4, and with rising numbers of applicants, the college reports this ratio will again increase this year.

What is particularly sad about this situation is that students with promise have to be turned away. Most of those who are not accepted are not turned down for scholastic reasons. It is simply a question of dollars and cents; dollars and cents unavailable to either the student or the educational institution.

The American Optometric Foundation views such a state of affairs with grave misgivings. Our profession is desperately in need of additional high-caliber teachers; our profession is in need of more researchers. And here we are turning away high-caliber students who could help to fill those needs.

I mentioned earlier that the foundation had to limit its fellowships because of lack of funds. Again, the human potential—the research potential was there, but we could not put it all to work.

Yet, like the optometric profession as a whole, we have gone forward, regardless of financial and other obstacles.

The foundation is now engaged in a 3-year study at Indiana University School of Optometry to determine the factors involved in night driving, including not only the visual skills required, but automobile design and environmental factors as they affect safe night driving.

Recently the foundation made a grant to a young Ph. D. at Pennsylvania State College of Optometry to develop an improved tonometer, an instrument that detects glaucoma. This will eventually be available in general practice.

We are proud of our accomplishments. We shall continue to meet the challenges of research to the limit of our resources. I think that, looking at the entire field of optometry, it is amazing how much has been accomplished in the field of vision care and its advancement without the aid of outside funds. But the cost of education in all the health professions is high and probably will go higher; this is true of optometry. Considering our small amount of available loan funds, much more could be accomplished if the existing law is amended to make Federal loan funds available to optometry scholars and colleges.

The enhancement and preservation of the priceless gift of vision is the primary concern of the American Optometric Foundation, whose officers and directors serve without material compensation. Their only reward is the knowledge that their efforts will eventually play a part in the improvement of the vision—and

the vision care—of all of our people, and of people far beyond the confines of our country.

I hope that the members of this committee will report favorably on this proposed expansion of the student loan fund provided by Public Law 88-129. By doing so you will help insure a greater supply of future well trained optometrists, both men and women, from among whose numbers organizations such as ours will be able to secure the researchers who will make the optometric discoveries of tomorrow.

Thank you for the opportunity to present the foundation's views. In closing let me say that optometry is eager to meet its increasing challenges in the space space and to continue to provide the finest vision care in the world for our citizens. The loan funds now under consideration will go a long way to help to make that hope come true.

Mr. ROGERS of Florida. Are there any other witnesses that you have?

Dr. CHAPMAN. No, sir. There are no further witnesses from our association. I would like to suggest if any of you gentlemen have recorded questions which you would like to ask any of those who have previously testified, this might well be the time to do that, but I would—whatever procedure you follow will be all right with us.

Mr. ROGERS of Florida. All right.

Mr. SCHENCK. Mr. Chairman, I have only one question and that is that I think Dr. Ewalt mentioned additional studies were being made on the matter of filters of one kind or another, and I wonder where and when, that study is going to be completed and where the information will be available.

Dr. CHAPMAN. Mr. Schenck, I do not—well, I will turn it over to Dr. Ewalt.

Dr. EWALT. I am not able to answer when they will be completed, but I will certainly make an effort to get the information for you from members of our profession serving on these committees, and so forth.

Mr. SCHENCK. Thank you so much.

Dr. EWALT. On the filters for this fog and—

Dr. CHAPMAN. It is at Indiana University, I think primarily, isn't that right, Gordon?

Dr. HEATH. Yes, one of my colleagues, Dr. Merrill Allen at Indiana University is one of the country's leading researchers in the matter of driver's vision and visibility and illumination from vehicles. He is presently engaged in a study of filters and of foglights specifically.

Mr. SCHENCK. Well, recently there was some company—I do not recall now—who manufactured yellow colored lens for, I think, primarily trapshooters but who also felt that that was a valuable filter for fog. I know nothing about it.

Mr. ROGERS of Florida. Any questions at all?

Mr. BROTZMAN. Permit me to proceed out of order, if these gentlemen will indulge me one question. I have another hearing at 11:30. I just want to get one thing straightened out in my mind. I will direct this to any member of the panel, which I thought was a very effective one, I might say, but since we are talking about schools and education, will someone draw the line for me and define optometry, ophthalmology, I believe, and then there is another term, oculist. I do not quite have these things specifically in my mind as to which is which and which will be produced as a result of the education process assuming this particular measure is enacted into law by the Congress.

DR. CHAPMAN. In answer to Mr. Brotzman's question, one which constantly comes up in these discussions, Congressman, because of the similarity of the names, it make it very difficult on the part of lay people to understand the differences. I will be pleased to try and do that for you in as basic terminology as I can, and you will have to understand that it is really more extensive than I am going to outline for you now.

An ophthalmologist is not an optometrist. An ophthalmologist is a medical practitioner who has in most instances taken additional training in the treatment of eye disease and the handling of eye surgery. He at the same time includes in his practice in most instances the handling of vision problems and the prescribing of glasses.

The optometrist is a nonmedical practitioner in the sense that we are not concerned with the treatment or the surgery or the use of medicine in the handling of our patients. We are specialists in vision. Our first major concern is to determine the health of the eye. If it is deemed that this eye is healthy, and by the way, 98 percent of these eyes which will be seen will be healthy eyes, the optometrist then proceeds to utilize the various methods and techniques and procedures to make this pair of eyes a comfortable, efficient seeing pair of eyes.

In the course of that examination, if I discovered the need for surgical investigation, or further investigation from a pathological or from a health standpoint for treatment, then I immediately refer that patient to the proper physician for it, the proper medical practitioner.

The term oculist is not now—I want to say the right word here—it is not used nearly so much. The term is fast going out of vogue. It generally described back in its important day the medical practitioner who did eye, ear, nose, and throat, and quite often he would call himself an oculist. He rarely, however, went beyond his normal medical training for specialized work in the eye particularly as treatment or surgical requirements might demand. He generally specialized by his own interests in this field in the area of eye examination, prescribing of glasses, et cetera.

You see that term very rarely now. It still exists in some spots but not very often.

There is one other that you did not mention which is important in this whole scheme and really with the exclusion of the oculist term, now, you come to three, and the third is the optician, and his name is so similar, too, that it is also confusing. And I think the easiest way to remember his performance is to think of him in terms of a pharmacist in the sense that he can take a prescription from an ophthalmologist or an optometrist and fabricate a pair of glasses from it, but he is not trained or licensed or equipped to examine the human eye at all. You may take your prescription there and have it filled; your prescription from the ophthalmologist or optometrist.

Is that helpful to you?

MR. BROTZMAN. Very helpful.

MR. ROGERS of Florida. Thank you very much.

Any other questions? Any other questions?

MR. BROTZMAN. No; thank you.

**STATEMENT OF JOSEPH P. ADAMS, REPRESENTING THE
INTERNATIONAL CHIROPRACTORS ASSOCIATION**

Mr. ROGERS of Florida. At this time, then, there being no questions, thank you very much for an excellent presentation.

Any other—

Mr. ADAMS. My name is Joseph P. Adams. I am the Washington representative of the International Chiropractors Association, and I would like to request permission to file a statement.

Mr. ROGERS of Florida. That will be permitted, and without objection it will be made a part of the record at that point.

(The material referred to follows:)

WASHINGTON, D.C., June 2, 1964.

HON. PAUL G. ROGERS,

Subcommittee of Public Health and Safety, Interstate and Foreign Commerce Committee, House of Representatives, Washington, D.C.

DEAR MR. ROGERS; It was a pleasure and a privilege to attend the hearing conducted by you and the Subcommittee on Public Health and Safety of the House Interstate and Foreign Commerce Committee on Tuesday, May 26, on H.R. 8546, a bill to include optometry students in H.R. 12 under the student loan sections.

You authorized me to submit a statement on behalf of the International Chiropractors Association and the statement follows:

Chairman Rogers and distinguished members of the Subcommittee on Public Health and Safety, I am privileged to present this statement on behalf of the International Chiropractors Association of 741 Brady Street, Davenport, Iowa. My position with the association is that of Washington, D.C. counsel. The International Chiropractors Association is active and represents member chiropractors in all States of the Union. It is dedicated to the public welfare and to the promotion and preservation of high professional standards. It maintains that all citizens are entitled to freedom of choice of doctor for their personal health care.

There are compelling reasons why the science of chiropractic should be included in any consideration of H.R. 8546, by amendment. Chiropractic today is the second largest healing profession in the United States, and has earned, and deserves your consideration for its inclusion in legislation now the subject of this committee's study. Research and development in the chiropractic colleges of this country will probably afford the greatest dollar's worth of value purchasable in the entire health field today while at the same time increasing the output of doctors whose training will be made possible by the student loan section of the act.

To refuse chiropractors inclusion in this amendment is to prohibit thousands of young people the right to attend a college of their choice, but most of all it will deny the public the right to choose their own doctor because the present school system finds it difficult to meet attrition rate through its graduating classes alone. This is a worthy cause and it for our own citizens and our own young people. Help the chiropractic colleges help themselves by including them in this bill.

CLEVELAND CHIROPRACTIC COLLEGE

President, C. S. Cleveland, Jr., B.S., D.C., Ph. C.

"Every effort should be exerted to assure the inclusion of chiropractic in any consideration of the Health Professions Education Assistance Act of 1963 by appropriate amendment.

"The enrollment of Cleveland Chiropractic College, Kansas City, Mo., is growing, and we need more classrooms, more laboratories, and more equipment and facilities.

"Most all States are crying for more chiropractors. Many States such as Nebraska, Colorado, West Virginia, and many others are even subsidizing new graduates as an inducement to get them to come to their States.

"Our profession is losing many fine young men because they do not have the necessary funds to put themselves through chiropractic college without help."

It is respectfully called to the attention of the committee that in the case of President Cleveland, he expressly urges the inclusion of chiropractic students in the loan fund sections of the legislation under consideration.

PALMER COLLEGE OF CHIROPRACTIC

President, David D. Palmer, B.S., D.C., Ph. C., LL.D.

"It has been the experience of the Palmer College of Chiropractic, Davenport, Iowa, that our enrollments increased tremendously immediately after World War II, and immediately created a need for increased classroom facilities. Since that expanded enrollment, the students who matriculated under the GI bill has lessened but chiropractic student enrollments are still increasing. There now exists a need in chiropractic colleges for financial assistance for increasing classroom and laboratory facilities, and there is definite need for the availability of scholarships and tuition loan assistance to many worthy students with good scholastic aptitude.

"During the past 2 years, we have experienced requests from acceptable matriculants for student scholarships in excess of \$100,000.

"We have been delayed for lack of funds in research program which would be most advantageous to the needs of the general public, but have been unable to adequately supply research grants to undertake studies in the following areas:

- "1. Improved analytical and spinal diagnostic instruments;
- "2. Spinal impingements of vital nerve pathways; and
- "3. Approved spinal adjustment procedures.

"We have had innumerable students, the past year, desperately in need of tuition assistance in order to permit them to continue uninterrupted in their professional studies.

"The Palmer College of Chiropractic would be most grateful for much needed Federal assistance in these areas of student loans to chiropractic students."

These comments, though brief, are directly from the field of present-day experience in the field of chiropractic education and these college heads are the best qualified representatives of their profession to submit testimony before the distinguished committee.

Chiropractic is a licensed profession in 47 States of the Union. Chiropractic is generally recognized not only by National and State Governments, but also by independent insurance companies, unions, industry, and the public. Some industries now have staff doctors of chiropractic and many routinely refer injured employees to chiropractors. Management labor contracts provide for chiropractic care. Workmen's compensation laws in most States provide for chiropractic care. The public is utilizing services of doctors of chiropractic in an ever-increasing volume.

In conclusion then, the International Chiropractors Association heartily recommends the passage of H.R. 8546, a bill to include optometry students under the student loan sections of H.R. 12, and further to amend the bill to include chiropractic students.

The opportunity to present this statement as part of your formal hearing is appreciated.

Respectfully submitted,

JOSEPH P. ADAMS,
Washington, D.C., Counsel,
International Chiropractors Association.

STATEMENT OF DR. PAUL Q. PETERSON, ASSOCIATE CHIEF FOR OPERATIONS, BUREAU OF STATE SERVICES, PUBLIC HEALTH SERVICE, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Mr. ROGERS of Florida. Now we would like for Dr. Paul Q. Peterson, Associate Chief of Operations for the Bureau of State Services, Public Health Service, to come forward and testify.

Glad to have you with us, Dr. Peterson.

Dr. PETERSON. Thank you, Mr. Chairman.

I have no prepared statement. I am here to testify and answer any questions that members of the committee might wish to ask with reference to the report that was submitted by the Secretary in his letter to the chairman of the committee.

Mr. ROGERS of Florida. I believe your report is unfavorable.

Dr. PETERSON. Yes, sir. The report of the Department is unfavorable.

Mr. ROGERS of Florida. Now, let me ask you this. What is the need for students as far as the Department of Health, Education, and Welfare is concerned, the need for optometrists?

Dr. PETERSON. The Department and the Public Health Service have recognized that in optometry, as well as in other health professions, we do have serious manpower problems.

Mr. ROGERS of Florida. What is the extent of it? I am going to be very brief if we can because we do not have much time.

Dr. PETERSON. I am unable to give you specific data which would indicate the extent of the shortage insofar as optometrists are concerned. The Optometry Association indicates that they feel they need 1 optometrist per 7,000 population whereas it has been testified this morning their present ratio is 1 to 11,000. The Public Health Service has no evidence in this area. We have not done studies on this subject.

Mr. ROGERS of Florida. I thought you gave this committee an unfavorable report.

Dr. PETERSON. The unfavorable report was with reference to the need for loans to students and, as was pointed out by the Secretary in his letter, on the basis of present costs of instruction, the present student body within the various schools, the availability of student loans under the National Defense Education Act and their present utilization, it was our feeling that the problem, so far as loans were concerned, was adequately met under existing authorities.

Mr. SCHENCK. Mr. Chairman, may I just interject a question there?

Now, I take it that the Secretary feels that there are ample funds under the National Defense Education Act for this purpose.

Dr. PETERSON. That is correct.

Mr. SCHENCK. And that his unfavorable report is based largely upon the assumption that he does not have at his disposal sufficient loan funds to meet the additional loans to the students covered by H.R. 8546.

Dr. PETERSON. That is correct. It was his feeling that the funds under the student loan provisions of the National Defense Education

Act were eligible to be utilized by and appear to be adequate for the needs of optometry.

Mr. ROGERS of Florida. Well, I am rather at a loss to understand how you come to this conclusion if you do not know what the needs of the public would be.

Mr. PICKLE. That is what I was going to ask. Do you challenge their statement?

Mr. ROGERS of Florida. How do you come to this?

Dr. PETERSON. At the present time, so far as we are able to determine, the numbers of individuals going into schools of optometry would probably not be substantially increased by the addition of another loan provision to them. This is—

Mr. ROGERS of Florida. It would not be, you say?

Dr. PETERSON. Probably would not be.

Mr. ROGERS of Florida. Well, now, what do you base that on?

Dr. PETERSON. We would base that on the evidence that at the present time in the National Defense Education Act there are students who are receiving loans that would amount to about 14 percent of the total student body attending optometry schools. Their average loan is about \$628 a year. Thus, there is a larger proportion of students in optometry schools receiving loans than there is in the general student body of universities participating in National Defense Education Act.

Mr. ROGERS of Florida. And what does that show now?

Dr. PETERSON. We would assume that this is an indication that loan funds are available as required to meet the financial requirements of the students.

Mr. ROGERS of Florida. Because 14 percent of the students are getting loans from the National Defense Education Act.

Mr. PICKLE. Optometrist loans?

Dr. PETERSON. Loans to students of optometry.

Mr. NELSEN. Mr. Chairman, at that point, if there are, according to the letter, 174 students receiving loans, and if we have 500 taking optometry at this time, that is more than 14 percent. That is 34 percent.

Dr. PETERSON. About 1,500, Mr. Congressman.

Mr. NELSEN. I understood the previous testimony to indicate 500.

Mr. ROGERS of Florida. I think graduating 500.

Dr. PETERSON. But there are about 1,500, if I recall rightly, Mr. Congressman, that are presently enrolled.

Mr. ROGERS of Florida. Well, now, the only thing that I would like for you to clear up for me, and I think you had better go back to the Department and get this cleared up for this committee, all of your other programs have been presented where there is a need, and we have just gone through this with your medical people, your dentist people. We are going through it now with nurses. And the reason they want us to have additional loan programs, at least the Department has told us this, was that it would attract more people and enable more people to come into the field where there is a need.

Mr. SCHENCK. To fill a gap.

Mr. ROGERS of Florida. Exactly. This is the whole basis of the presentation for two or three bills we have already considered. Now, you come before the committee, and I am not speaking of you

personally, Doctor, but your Department, it comes before this committee without any knowledge of the need or any presentation of the need and now tell us everything is fine because 14 percent of the students who are now in it are getting some loans.

Now, I cannot reconcile this testimony with the testimony that has been given on the other bills, and I am rather amazed the Department would come to us without knowing the extent of the need and be able to tell with some certainty whether there is a need that exists for more optometrists or not, more encouragement for students to be attracted to this field or not, and yet to take a position on the bill. And it is my feeling—I do not know whether it is shared yet by my colleagues—but I am amazed that the Department would come before this committee without better knowledge, and I think it would be well for the committee, if it meets with the feeling of my colleagues, to have you go back and tell the Secretary that we want this problem gone into and not to send up testimony that does not help the committee in its consideration of legislation.

Mr. SCHENCK. Mr. Chairman, may I speak to that point?

Mr. ROGERS of Florida. Yes.

Mr. SCHENCK. I share your views completely. I would not have expressed them nearly as diplomatically as you have, and I would insist absolutely on the Department justifying that unfavorable letter of facts, figures, and definite information.

Mr. ROGERS of Florida. Thank you.

Mr. PICKLE. Mr. Chairman, I certainly share your feelings, and I am likewise amazed that the Department would appear in opposition to a bill when they do not have any facts to show the need or lack of need for their position. I know from experience in Texas at the University of Houston, the optometrists of Texas started this school there. They have contributed well over \$100,000 out of their own pockets for that school, and each year at their State convention they pledge again some \$15,000 to \$20,000 to keep that school going, and they have taken it from themselves when they needed the money individually for family obligations. But they have done it to keep that school going and to make it one of the strong schools of the United States.

There is a need for optometrists in my judgment, and there is a need for better schools, and I am surprised that the Department would come here taking a position so contrary to what they have been advocating in other similar fields. So I do share your feelings.

Mr. ROGERS of Florida. Thank you.

Mr. NELSEN. Mr. Chairman, it seems to me that the letter here does not argue the point that optometrists are needed, but it presents the position of the Department that funds are available and that 174 students are getting loans.

Now, the only point of difference I see here seems to be in the fact that it states:

Because of the relatively lower costs of education to optometry students, and because of the adequacy of the national defense student loan program to meet these requirements, we believe that the new loan program for medical and dental students should not be extended to cover students of optometry. We, therefore, recommend against the bill.

Previous testimony has indicated that \$1,000 top is inadequate, that \$2,000 is necessary. It seems to me that earlier testimony indicated that this was an expensive course. Now, is it cheaper than others—is it financially easier to become an optometrist than, shall we say, a nurse or doctor or—

Mr. ROGERS of Florida. Dentist?

Dr. PETERSON. On the basis of the averages of tuition, it is known that in 1963-64 the tuition for private schools of optometry was about \$825 a year as compared with \$1,056 in private schools of dentistry and over \$1,400 in private schools of medicine. This difference in tuition coupled with the differences in numbers of years that are required, is an indication of the different costs that are involved. As was testified this morning, Florida has taken the very forward step of providing \$4,000 scholarships for students of optometry. Under the National Defense Education Act now there would be available \$5,000 per student during the present minimum number of years of academic training that is required. Should those years go up, there would be similar expansion of funds that would be available.

Mr. ROGERS of Florida. If the gentleman would yield a minute—

Mr. NELSEN. Yes.

Mr. ROGERS of Florida (continuing). What is the comparison of the cost of optometry to a regular undergraduate course? This is what National Defense Education Act is. How does it compare with that? Is optometry more expensive than the 4-year undergraduate course?

Dr. PETERSON. Yes, it is more expensive, Mr. Chairman. There is an additional year that is required which certainly is an addition which is taken care of under the present authority of National Defense Education Act. It is also, as has been testified here this morning, more expensive. The tuition costs are higher in optometry than in the regular academic liberal arts curriculums in general. However, when we look at the average loan figures as provided by the Office of Education, the average loan for academic students in liberal arts is under that that is presently being used by the students in optometry.

Mr. ROGERS of Florida. Well, you could probably say that is probably true with medical students, nurses, every one of the health fields. I feel sure the facts that you have used here could probably be developed also in those fields. But what I cannot understand is where the testimony that is presented says that we are now graduating 500 and just to keep up we need 1,000 graduates a year. Now, is any National Defense Education Act meeting this problem?

Dr. PETERSON. Mr. Chairman, we did not say—neither the Public Health Service nor the Department has said that we have any evidence with reference to the need for optometrists and ophthalmologists to meet the requirements for care of the eyes and health of eyes of our Nation. We have not been able to get this type of information as yet to the extent that we have been able to get it for medicine, dentistry, and nursing.

Now, with reference to the costs of professional education—

Mr. ROGERS of Florida. Well, let me interrupt you here. I do not think your testimony has any value until you know what the need

is, and I would ask on behalf of this subcommittee that you return to the Department and advise the Secretary of this, that this should be developed, what the need is, and how this is going to affect it, whether it is being handled by the National Defense Education Act. How can you say it is being handled when you do not know what the need is? I just do not see how we can develop testimony from the Department without substantial information.

Mr. SCHENCK. Neither do I, Mr. Chairman, see how you can compare liberal arts with a health science.

Mr. ROGERS of Florida. And this is not a rebuff to you personally, but to the Department. I am amazed frankly that they would come here without any background of knowledge of need in this whole field or whether it is being met, the problem of the American people in the eye problem.

Mr. NELSEN. Mr. Chairman, before the bell rings, I would like to just pursue this a bit further.

Now, the average loan that has been extended to the students of optometry has been \$628. The maximum under the law is \$1,000. The total has been \$5,000. In the event of the course being extended longer than the regular collegiate course in other fields, it is possibly true that that \$5,000 figure could be raised, is it not?

Dr. PETERSEN. Yes, it is.

Mr. NELSEN. Now, are there any provisions in the budget for this bill that we are talking about now? I believe not.

Dr. PETERSEN. No, sir. There is no provision.

Mr. ROGERS of Florida. Now, just a minute. On that, this simply would amend present legislation so that moneys that are already available would also be included for this program. Isn't that true?

Mr. NELSEN. But it does not anticipate additional students by virtue of the amendment.

Mr. ROGERS of Florida. Well, we do not know how these funds are going to be used because they also may not all be used for the medical field or the dentistry field or the nursing field. All of this is still in the state of being allocated, will be over the next fiscal year or so, next 5 in some cases.

Dr. PETERSEN. The bill that this amends includes only the medicine, dentistry, and osteopathy. The nursing bill is a separate piece of legislation as you are aware, Mr. Rogers, and we would point out that in the development of that legislation, the Department recognized the differences in costs with reference to education of this professional group, and there is a lesser amount, much less, that is proposed in that legislation than is in the health professions assistance loan program.

Mr. NELSEN. Mr. Chairman, I would like to point out that in the debate on H.R. 12, you will recall that in the Committee on Education and Labor, many of them did not support us on that bill on the basis that we were fragmenting the educational program by putting some under another act. Without question we have run into that problem on this bill in view of the fact that presently loans are being made to students of optometry under the terms of the National Defense Education Act.

So I just point out that we might be interpreted to be rather unkind to the witness because, as I read this letter, they do point out

that loans are available under the present law. The point is not argued that there is not a need, but the point is argued that there is machinery in the law to extend loans, but I do think the need needs to be established, and I quite agree with the chairman that perhaps if information can be made available, it would be valuable.

But I would like to point out one other thing. We have been told that only 500 are continuing their course. Now, is there any evidence to show that the services of an optometrist have not been available to the general public? That I have not been told. I know of no one in our area that cannot get a pair of glasses if they want them. And I wonder just why there is a falling off in the young men and women who go into this field, and certainly the comparison with medicine at this point would hardly be a fair one because H.R. 12 has not been in operation long enough to have made any appreciable imprint on the trends. I would like to point out for the benefit of those gentlemen, the gentlemen who are here, I happen to be a farmer, and I sat here and anticipated a young man starting a 200-acre farm. No. 1, he would have to start out with \$40,000 to buy a farm and only a small one. It would take about \$4,000 for a tractor, \$475 for a plow, and I can go on down, and I add \$54,000, and that is only a small beginning.

So those of us in the Congress have to view these things on the basis of need as has been pointed out by the chairman, and sometimes I begin to wonder maybe we need to make loans to the people to buy the glasses in the first place. Maybe that should be part of the poverty package. You might take that back downtown.

Mr. ROGERS of Florida. Thank you. You might want to refer to the statement of Dr. Waldman which is a complete statement. On page 7 he just gives some examples where there are no optometrists at all in many of the areas and in some, one to 16,000. Various figures are there I think which—this is the problem I want to get at, that the Department tells us they have no information as to the needs. Now, if there is no need, certainly this committee I am sure does not want to get into an additional field. If there is a need, we want to be aware of it before we act. But for the Department to come up here and tell us either they are for it or not when they do not even know the need, I say the testimony is absolutely worthless and if you can take this word back we will call the Secretary himself and let him explain why they cannot get proper testimony to us.

Mr. SCHENCK. Mr. Chairman, my only additional point is that I notice in this recapitulation of counties and States, et cetera, Ohio is not mentioned. Apparently we in Ohio are in pretty good shape and doing a good job.

Mr. ROGERS of Florida. I think in view of the fact that we will have to take some additional testimony from the Department, we will recess subject to the call of the Chair.

(Whereupon, at 12 noon, the subcommittee was recessed subject to the call of the Chair.)

The following article is a review of the work of the author in the field of the chemistry of the transition elements. It is a very interesting and valuable contribution to the literature of the subject.

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LOANS TO STUDENTS OF OPTOMETRY

MONDAY, JUNE 22, 1964

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC HEALTH AND SAFETY
OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 1334, Longworth House Office Building, Hon. Kenneth A. Roberts (chairman of the subcommittee) presiding.

Mr. ROBERTS. The subcommittee will please be in order.

At this time Dr. Paul Peterson, Associate Chief for Operations, Bureau of States Services, Public Health Service, is here to testify as to the Department's position on H.R. 8546. Dr. Peterson had been here at the other hearing and as I understand the situation, was to go back to the Department and come back with some additional information. That was my understanding of the situation at the end of the last meeting.

We are very happy to have you, Dr. Peterson, and you may proceed with your statement.

STATEMENT OF DR. PAUL Q. PETERSON, ASSOCIATE CHIEF FOR OPERATIONS, BUREAU OF STATE SERVICES, PUBLIC HEALTH SERVICE, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Resumed

Dr. PETERSON. Thank you, Mr. Chairman.

The hearings before this subcommittee on May 26, 1964, on H.R. 8522 and H.R. 8546, bills to amend title VII of the Public Health Service Act to extend to qualified schools of optometry and students of optometry those provisions thereof relating to student loan programs were recessed by the Chair with the request that the Department provide additional information regarding its recommendation against enactment of the legislation.

The Department policy regarding recommendations for special Federal assistance to students in various categories of health manpower is clear and consistent. Support of such student assistance is only recommended for those professional health categories wherein a clear and demonstrated need has been documented not only in terms of the numbers of the profession, but also in terms of jeopardy to the public health. Such jeopardy may be the result of long or short term serious lack of services, or may be the result of a shortage of trained manpower to exploit a scientific or technological breakthrough that would bring additional health benefits to our citizens.

Adequate manpower data have been accumulated in depth with respect to medicine and osteopathy, nursing, dentistry, and specialists in public health. The Public Health Service as a result has been able to conduct additional studies refining the evidence for presentation to the Congress. There is at the present time no study which identifies substantial unmet needs in the area of treatment of refractive errors and eye muscle disturbances.

Additionally the Department studies existing student assistance programs to determine whether they appear to be adequate to the needs of the students in the category under consideration. In the case of optometry students, evidence available to the Department indicates that the national defense educational assistance student loan program is meeting such needs and in fact has substantial latitude to meet even greater optometry student financial assistance than at the present time.

I would like now, with your permission, to expand on this policy statement with special reference to our negative recommendation on the legislation in question.

The question before us is not whether students of optometry should have Federal financial assistance in pursuing their education. That question has been answered, and such assistance is now being provided under the National Defense Education Act.

The question before us, stated very simply, is this: Is there a clear and demonstrated shortage of optometrists, so jeopardizing the health of the people of this Nation, as to warrant special assistance to students of optometry over and above that which is available to them under the National Defense Education Act? We have found such critical shortages in medicine and dentistry, in nursing, and in public health. To the best of our knowledge there has been no clear and documented evidence of such a shortage in optometry.

As you are aware, the PHS has for many years been concerned with the health manpower supply and requirement as they affect the health of the people of the Nation. From its general studies it has identified some of the key shortage categories, and moved to develop studies of those areas, with a view to long-range program recommendations to meet those documented needs. Such studies have identified critical shortages of physicians, dentists, public health personnel, and professional nurses, and the need both to increase the capacity of the teaching facilities and to provide special financial assistance to students in those categories. As a result of those studies, the Public Health Service has supported legislative proposals leading to the Health Professions Educational Assistance Act (Public Law 88-129) with provision for special loans for physicians and dentists, and to H.R. 10042 and H.R. 10043, bills for special Federal assistance in meeting shortages, respectively, of professional nurses and of professional public health personnel.

There are at present more than 30 recognized health professions and an even larger number of categories of subprofessional workers. The Public Health Service believes that legislation which would authorize special educational assistance in behalf of any of these health categories requires careful documentation of the following:

1. The present supply situation.
2. Trends in supply, and the outlook for future supply.
3. The present needs, demands, and the relationship of their numbers and skills to those of workers in related health occupations.
4. Expected future needs and demands.
5. The health effects of present and projected shortages.
6. The present training capacity in relation to need.
7. The availability of students in relation to need, and factors affecting the supply.
8. The adequacy of existing ways and means—public and private—of meeting any demonstrated needs.

At the present time we do not have data, for instance, on such necessary factors as (1) the incidence of eye disease in the general population, (2) the relative share of all eye disease represented by refractive errors and eye muscle disturbances, (3) the total number of persons in need of eye care, (4) the number of persons in need of eye care who are not receiving services, and the reasons that they are not receiving such service.

We are aware that the American Optometric Association is recommending a ratio of 1 optometrist to every 7,000 persons—or about 14 per 100,000—but, in the absence of the documentation of the essential factors noted above, we have no evidence to the validity of that projection.

Under the national defense education program, however, we do have information on the availability of student assistance and its adequacy to meet the financial needs of students of optometry. Although only 8 percent of the general student body in our colleges and universities received National Defense Education Act loans last year (1963), 14 percent of the optometry student body received such assistance, and this proportion was in spite of the fact that 3 of the 10 schools of optometry had not chosen to join the program. With the recent increase in the amount of Federal money available for National Defense Education Act student loans, which was raised from \$90 million in fiscal year 1963 to \$125 million in fiscal year 1964, with further increases anticipated in fiscal year 1965, the National Defense Education Act student loan program will have even greater resources on which to draw.

In my testimony to your committee on May 26, I mentioned some of the factors which underlie our belief that the National Defense Education Act student loan program is adequate to meet the financial needs of the optometry students, and that the special assistance of the Health Professions Educational Assistance Act is not indicated. One of these factors is in the comparative cost of medical or dental education as against optometry education. If we assume that the living cost of students is essentially the same, the difference in annual and aggregate costs may be measured in terms of (1) the costs of tuition and fees and (2) the number of years in the academic curriculum. For medical schools, the median annual tuition and fees in public schools is \$558, resident, and \$975 for nonresident students, and in private schools, \$1,400. For schools of dentistry, the median annual tuition in public schools is \$497 for residents, \$938 for nonresidents, and \$1,056 for private schools. For the schools of optometry, the median annual tuition is \$270 for a resident and \$500 for a nonresident in public

schools, and \$825 for private schools. When we compare tuition and fees in schools of medicine, dentistry, and optometry in the same university, the difference in costs is in about the same order of magnitude.

When we look at the length of training, we find training for optometry usually consists of 3 years at a school of optometry after 2 years of undergraduate college education—or 5 years in all. All schools are on this program except the University of Houston, where there is a 4-year program in the school of optometry, and it has been indicated that Ohio State University plans to initiate such a 4-year program in the fall of 1964. Although there are a few schools of dentistry and medicine that will accept students with less than a baccalaureate degree, the competition for places in medical and dental schools makes 4 years of college work a practical requirement for admission. The professional academic course of dentistry and medicine requires 4 years, and an internship is required in medicine and recommended in dentistry. This is a total of at least 8 or 9 years, compared with the 5 for optometry. Furthermore, most physicians serve a residency of from 2 to 4 years after completion of their internship.

Therefore, both in the annual costs of education and in the number of years required to complete the training, medicine and dentistry have substantially greater requirements than optometry.

Furthermore, both the average annual loan to students of optometry under National Defense Education Act in 1963, which was \$628, and the total estimated need of such students are well below the maximum allowances of \$1,000 per year and \$5,000 total authorized under the National Defense Education Act.

The Health Professions Educational Assistance Act, as you know, provides that a loan does not become repayable until 3 years after the student ceases to pursue a full-time course of study. This provision was included, of course, because of the requirements of internship and residency. The National Defense Education Act loans become repayable in the year following the completion of the course of study, and we believe this is a more appropriate requirement for optometry which has no internship or residency.

We might also call to your attention that at the present time the interest rates under the National Defense Education Act are more favorable than those under the Health Professions Educational Assistance Act. As you know, the National Defense Education Act interest rate is 3 percent. The Health Professions Educational Assistance Act interest rate is 3 percent or the going Federal rate, whichever is higher; and at the present time is ranging between $3\frac{7}{8}$ percent and $4\frac{1}{4}$ percent. Since the Health Professions Educational Assistance Act specifically provides that as long as an eligible institution has an agreement to participate in its loan program no medical or dental student can receive a loan under the National Defense Education Act, therefore there would be no opportunity for a student to choose the lower interest rate if his school has embarked on a loan program under the Health Professions Educational Assistance Act.

In summary then, our recommendation against enactment of these bills rests upon the following factors:

1. There has been no clear and documented evidence of a critical shortage of optometrists, such as to jeopardize the health of our citizens.

2. Adequate assistance is available to students of optometry under the loan provisions of the National Defense Education Act, and is likely to increase.

3. The loan provisions of the Health Professions Educational Assistance Act were tailored to meet requirements of longer and more expensive professional training than that of optometry.

Thank you, Mr. Chairman. I would be happy to answer any questions.

Mr. ROBERTS. Thank you, Dr. Peterson.

This position of the Department is a little bit confusing to me in that this question of shortage in this particular field has been before the Congress, particularly since the debates in the Senate on this bill in the last session.

Now, if I am correct, there was an amendment offered in the Senate to include optometry for loans under H.R. 12. That is to include not loans but construction.

Dr. PETERSON. That is correct.

Mr. ROBERTS. And that was accepted. That is correct; is it not?

Now, it would seem to me that if the Congress as a matter of policy found it wise to include construction money in a major piece of legislation such as this bill, then the Department might have anticipated that this question of wanting to—that is, this desire of this committee and a similar committee in the Senate would have been desirous of getting some facts and figures together as to whether or not the students hoping to pursue this profession should have some additional consideration. Does that appear to be a reasonable thought to you?

Dr. PETERSON. Yes, sir. I think, as a matter of fact, it is a very reasonable expectation on the part of the committee. I can only say that the Department has not undertaken such studies at the present time. We felt that we had problems that were presented to us with reference to some of the other professional categories in which there were existing data that could be used for presentation of materials to Congress such as in the health professions, the public health training programs, and nursing. However, we have not undertaken studies in optometry, and I would want to say also, Mr. Chairman, that even if a year ago we had initiated such studies to try to gather information in depth equivalent to that in some of the other health professions, we would not have been able to complete them in this period of time.

However, I offer this as no excuse to the committee for not having such data available for your consideration at this time.

Mr. ROBERTS. The position, then, of the Department at this point is that since we do not have the facts and figures which do or do not establish a shortage, that the Department simply recommends against the bill. Is that a fair statement of the Department's position?

Dr. PETERSON. With one other addition, Mr. Chairman, and that being the fact that, as we have indicated, it would appear from our study of the financial needs of optometry students, at least as reflected by their use of the National Defense Education Act student loan program, that this financial assistance provided in the National Defense Education Act is meeting their fiscal needs insofar as we are able to determine, plus the fact that, as we indicated, it is a more favorable loan program than that provided under the Health Professions Assistance Act. So it appears to us that, at this point in time, we do have

a Federal program to assist in meeting the need, and in the absence of, as you point out, specific data indicating the levels of professional personnel in optometry that might be desirable, we feel that this is meeting their financial requirements.

Mr. ROBERTS. Well, of course, I think that is subject to some—in fact, a good bit of argument because in an exchange between you and Mr. Nelsen—I won't refer to it as an exchange but the testimony appears on page 56 of the record, and Mr. Nelsen was restating the position of the Department when he said 174 students are now getting loans, and I believe that elsewhere in the testimony, we are now graduating around, what, 500 a year over the country which—

Dr. PETERSON. I think at the present time enrollment is 1,000 or, at least in 1962-63, Mr. Chairman, it appeared that the enrollment was 1,319. It probably is up some over that in the present year.

Mr. ROBERTS. Well, this indicates, then, about roughly 14 percent?

Dr. PETERSON. That is correct.

Mr. ROBERTS. Do you know if the Department has any plans for making a study in this direction?

Dr. PETERSON. It is my understanding that the Public Health Service has been approached about, and is in negotiation with the Optometric Association with reference to the possibility of a study and what its character might be, and the respective elements of it that would be assumed by the profession and by the Department. However, I am not familiar with the exact status of those negotiations at the present time.

Mr. ROBERTS. Well, it would seem to me, and I am not saying this critically of the Department, but it just seems to be a fair situation, it would be fair, for the Department to make an honest effort to come up with some facts and figures. We have done it all along the line. We had no less than three or four long-range studies of the need for doctors and dentists and osteopaths. We have had many studies on the subject of nursing. And it would seem to me that this could be a very—is a very vital matter, and in fairness to the people who are interested on this side and on the other side, and the general public, and the people in this profession, the Department ought to have already had, in my opinion, some studies made in this field.

Mr. ROGERS?

Mr. ROGERS of Florida. Thank you, Mr. Chairman.

I am somewhat concerned still, Dr. Peterson, on the attitude of the Department not knowing the needs. Of course, I understand your second reason for taking the position you do, that you would be opposed to the bill, the Department would be opposed to the bill because there are some funds now being made to the students. Is that your second position?

Dr. PETERSON. That is—

Mr. ROGERS of Florida. National Defense Education Act.

Dr. PETERSON. That is correct, sir.

Mr. ROGERS of Florida. How was it that they were included in the National Defense Education Act?

Dr. PETERSON. They are one of the categories of students eligible for financial assistance under the National Defense Education Act program, and, as I have indicated, although this is an Office of Edu-

cation matter; we are advised that they would anticipate greater resources to be available, so that even if the three schools that are not now participating in the program, decided that they desired to participate in student loans for their attendance, this would be possible.

Mr. ROGERS of Florida. Well, now, I believe it is your reasoning, too, that since there are 14 percent of the students of optometry receiving the loans, therefore, it means they have no need for special loans, even though you do not know what the need is; is that true?

Dr. PETERSON. No. I am sorry, sir. The point that we were making there is the fact that students of optometry are now participating to a greater extent apparently in the student loan programs under National Defense Education Act than are the general students in college.

Mr. ROGERS of Florida. Yes. I realize that, but I thought the conclusion you draw from that was therefore this decreased the need for any special help in this regard.

Dr. PETERSON. Well, it would from this point of view to show that it is possible for the National Defense Education Act program to meet even larger needs on the part of optometry students than for the general student body in collegiate attendance. And, therefore, we would expect in light of the fact that there are greater resources being made available for students loans under this program, that the numbers participating under the National Defense Education Act could be increased in order to meet even greater fiscal requirements that they might have that are presently not being respected.

Mr. ROGERS of Florida. Doesn't it show you there is some extraordinary need, then, for students of optometry to have this help if already they are using present programs more than any other category?

Dr. PETERSON. Yes. And if there were evidence that the program did not have adequate funds to meet that substantially greater need, then we would obviously not be able to take this position with reference to it.

Mr. ROGERS of Florida. Well, how do you know? You have not made any study.

Dr. PETERSON. The only evidence that we have, Mr. Congressman, is that at the present time the average loan is well below the annual ceiling and well below the total authorized loan under the National Defense Education Act.

Mr. ROGERS of Florida. Well, I was thinking of numbers, not necessarily of the amount of the individual loan. I was thinking of students.

Now, have you gone over the testimony that the optometry people have presented to the committee?

Dr. PETERSON. Yes, sir. We were present when they presented their testimony.

Mr. ROGERS of Florida. Have you seen the figures that some of the schools of optometry are now turning away students? Instead of one in three being accepted, they are now having to reject three out of four. Does this cause you any concern?

Dr. PETERSON. Well, this is a cause for concern. On the other hand, there was published in the Journal of the Optometric Association for the year 1962-63 a study by Morgret—34:795, May 1963—on opto-

metric education in the United States which indicated that enrollment in 1962-63 was below that possible for the schools to handle with their present faculty. So it would appear that even though there are increases at the present time in the applications for places in the classes, and some of the schools have substantial numbers of applicants that they are unable to accept, in aggregate in the schools of optometry, at least in the 1962-63 academic year, there were additional places available for substantially larger numbers of students.

Mr. ROGERS of Florida. Well, perhaps an added incentive to get these people into these schools, this might be possible, too, I do not know. It would indicate that.

Now, have you gone over the chart where it shows where many of the areas of the country have no optometrists and some very high ratio, 1 to 21,000, 1 to 20,000? Have you gone over these charts?

Dr. PETERSON. Yes, sir.

Mr. ROGERS of Florida. In the various States? Does the Department have no concern about this?

Dr. PETERSON. The Department does have concern, sir. On the other hand, at the present time we think of the problems of refractive errors and of eye muscle disturbances, these do not represent emergencies. They can be taken care of without the need for, perhaps, the immediate attendance of a specialist within the community. This does not solve an overall problem as you have pointed out. On the other hand, during the period when we are trying to assess the questions of professional need, it is not apparent to us even though there are substantial areas where the ratio of optometrists to population is less than the national average, that people are going without refractive correction, and that those who would need to have optic attention have not been able to be referred for such attention when it was determined desirable by their professional attendant.

Mr. ROGERS of Florida. Well, now, you make this determination, that all of these people do not need any optometric care. You have not done any study on it. How do you—

Dr. PETERSON. No.

Mr. ROGERS of Florida. How do you come to this conclusion?

Dr. PETERSON. The conclusion that we have come to is that we do not have at the present time evidence that would indicate that there are substantial numbers of individuals, even in these shortage geographic areas, who are going without refractive correction or other treatment. We have not made a professional judgment in terms of whether there is adequate or inadequate or improper distribution of members of the profession to serve the total and optimal eye disease requirements of the population. We admit that there are undoubtedly areas of the country where this is inadequately provided.

Mr. ROGERS of Florida. Well, can't you take figures that were presented to you, even though it may be the professional people themselves who are involved? Can't you go over those and make some determination whether there is validity in these or not without any vast 2-year study where they have already got facts for you?

Dr. PETERSON. We would be able, yes, sir, to do some work in that regard.

Mr. ROGERS of Florida. And yet this obviously has not been done as I can see it. I have thought this would have been done by the time we asked you to come back here, from the time we started. We had this testimony before the committee, and this in some of the testimony this committee has to evaluate, and we were hoping we could have some expert knowledge from the Department in evaluating this. But obviously this has not been done, and this is of concern to me. Are you concerned, or have you given any thought to what is going to happen to the old-age population in this country which in the next 20 years will have about a 20-percent increase, and the studies show, a recent study that was made, just a little canvass, a survey, showed that from age 45 to 64, 89 percent wear glasses, and 65 or over, almost 100 percent. And here we have a 50-percent increase of this population where they are about 100 percent wearing glasses in the next 20 years, and yet the Department has done no study on this for the American people.

Dr. PETERSON. That is correct, sir.

Mr. ROGERS of Texas. Well, now, what are we doing? Do we do studies just when a professional group comes in and asks the Department, or are we doing studies for the concern of the health of the American people?

Dr. PETERSON. We have tried to do the latter, sir. And have tried to pick out those health professions that would appear to be in greatest need. In fact, there are studies at the present time underway as to the needs for elderly citizens for special eye care. They have been made possible by project grant programs under the Community Health Services Act passed in 1961. And I would feel sure that studies in greater depth of visual problems, of refractive problems, of problems of eye disease, both in the older population group and in younger age groups, where there are also problems in this regard, will be continued and certainly will bring additional data before us with reference to these special problems.

Mr. ROGERS of Florida. Yes. Well, now, it is nice to talk about these studies, but when? You say you do not have any specific knowledge. Who has some specific knowledge from the Department as to when this is going to be done?

Dr. PETERSON. Well, the studies that are presently underway obviously will begin to bring evidence.

Mr. ROGERS of Florida. Well, now, what studies? And who is doing them?

Dr. PETERSON. There are substantial research studies being conducted by the National Institute of Neurological Disease and Blindness in this area.

Mr. ROGERS of Florida. As to the need for optometrists and ophthalmologists?

Dr. PETERSON. As to the needs—

Mr. ROGERS of Florida. Eye care?

Dr. PETERSON. As to the need for eye care and the problems of eye disease, of various methods for the management of these diseases, and obviously out of such data will come criteria for the better assessment of needs of eye specialists, both ophthalmologists and optometrists.

Mr. ROGERS of Florida. Yes. Well, now—

Dr. PETERSON. There are also studies that are being supported in the community health services and facilities project grant program dealing with special problems of the aged and their care, in regard to eye disease as well as other physical disablement.

Mr. ROGERS of Florida. Now, can you submit to this committee a list of those studies, who is conducting them, under whose jurisdiction, and when they will be completed, when it is anticipated we can have the results?

Dr. PETERSON. We would be happy to submit that for the record.

(The information requested appears beginning on p. 173.)

Mr. ROGERS of Florida. I think that would be helpful, and what you expect to find. In other words, if it is a study on the need for eye care, and so forth.

Let me ask you this. Does the Department agree that optometry is a necessary medical aid to the people or not? What is the official position on this? It appears to me you do not even want to recognize optometry. What about it?

Dr. PETERSON. I hope that that has not been the impression we have given to you, sir, because so far as the Department is concerned, optometry is a healing profession licensed by all of the States and territories, and we have never taken any position other than that in terms of projects that have been awarded or other activities that have been undertaken by the Department.

Mr. ROGERS of Florida. Has HEW ever hired an optometrist who is employed to do the job of an optometrist?

Dr. PETERSON. Yes, sir.

Mr. ROGERS of Florida. Will you tell us who they are?

Dr. PETERSON. Well, I am not familiar with all such. I answered with a great deal of assurance because a friend who is an optometrist is employed out at the National Institutes of Health.

Mr. ROGERS of Florida. To do the job of an optometrist.

Dr. PETERSON. That is correct.

Mr. ROGERS of Florida. Which is mainly concerned with refraction, and so forth.

Dr. PETERSON. Research in refractive problems.

Mr. ROGERS of Florida. Suppose you supply us a list of who you have hired. I do not think it would too large a job from what I understand. I do not think there will be too many.

Dr. PETERSON. All right.

(The information requested appears on p. 173.)

Mr. ROGERS of Florida. And I know you have some ophthalmologists.

Dr. PETERSON. Yes. We have some.

Mr. ROGERS of Florida. Are you doing any training of assistants in refraction?

Dr. PETERSON. There are two projects that have been awarded, one to Georgetown University Medical School and the other to New York University for the development of a curriculum that would provide training for ophthalmological assistants to work in offices of ophthalmologists. The curriculum would envision nurses or college graduates who would want to take this type of special training to assist the ophthalmologist in his office. The two projects have only been underway for about a year, and we have not been able at this time to

assess whether or not this is a valid type of program. It will be some time before we know what the status of that effort might be.

Mr. ROGERS of Florida. What do you mean you do not know whether it is a valid program?

Dr. PETERSON. Just as with the training of any technical assistants, such as the X-ray technician, to help the specialist in developing and in the taking of films, in the operation of the X-ray department. Before it is possible to know exactly the type of training or what the use of these people might be, it is necessary to go through a period of experimentation. The same was done with dental assistants and chairside assistants in the dental profession before this type of training was more broadly supported by the dental schools. We also went through a similar period of experimentation before the licensed practical nurse found her place in the spectrum of professional nursing service as a technical aid to the professional nurse herself.

Mr. ROGERS of Florida. Well, are these optometrists, then, that are training—

Dr. PETERSON. No, sir.

Mr. ROGERS of Florida. To be of assistance?

Dr. PETERSON. They will not be licensed. They will not be licensed health professionals. Only technical.

Mr. ROGERS of Florida. But they will do the work in refractory work, refraction. Work on refraction.

Dr. PETERSON. They might in some instances do work for the physician in measuring refractive problems, or do other work in his office, depending on what work the physician might assign.

Mr. ROGERS of Florida. The optometrist profession says the ratio now is about 1 optometrist to each 11,250 persons, that there is now a shortage of 10,000 optometrists and the ratio should be 1 to 7,000. What is your comment on that?

Dr. PETERSON. As we indicated, at the present time we have no basis upon which to either accept or reject this as a valid goal.

Mr. ROGERS of Florida. Even with the figures that they have presented in their testimony here showing the shortages, and so forth.

Dr. PETERSON. It might be that this is an inadequate goal. It might be that it is more optimistic than would be required.

Mr. ROGERS of Florida. Well, let me ask you this. Have you done studies in ophthalmology?

Dr. PETERSON. No, sir.

Mr. ROGERS of Florida. Did you recommend that they be included in the health bill?

Dr. PETERSON. Only basic training for physicians; this was all that was provided. No special mention was made of any of the specialties of medicine.

Mr. ROGERS of Florida. No mention was made of any specialty of medicine?

Dr. PETERSON. No, sir.

Mr. ROGERS of Florida. But they are included, of course, in the medical aid bill.

Dr. PETERSON. During their undergraduate training, not for their specialized training.

Mr. ROGERS of Florida. Do you think it is more difficult for a medical student to get aid for his education than for, say, a student of optometry?

Dr. PETERSON. At the present time, with our hoping that the health professions student assistance loan program will begin with the next academic year, it would be my feeling that this loan program plus the loan program of the American Medical Association plus loan programs that are available in a number of the schools from private sources would probably meet the major loan requirements of most students in medical and dental schools. This may not be the case. On the basis of some recent studies by the American Association of Medical Colleges, it may be that we are not as favorably situated as this statement might indicate to you, but this is my best judgment at the present time.

Mr. PICKLE. I would like to ask you this question, Dr. Peterson, since we are on this subject. Isn't the Health Professions Assistance Act designed primarily to give assistance through the academic professional years only?

Dr. PETERSON. Only. For the 4 years of academic professional education.

Mr. PICKLE. That would include dentistry, medicine?

Dr. PETERSON. Very specifically it includes dentistry.

Mr. PICKLE. Optometry?

Dr. PETERSON. No, sir; it does not include optometry.

Mr. PICKLE. But it was for the academic years only.

Dr. PETERSON. That is correct. It does not include the preprofessional years of training, nor the postgraduate training.

Mr. ROGERS of Florida. Now I take it from your testimony, HEW really does not know anything about the eye care that is needed by the American people nor what eye care is really being supplied in regard to America. Would that be a true statement?

Dr. PETERSON. We do not have accurate data in that regard, that is correct.

Mr. ROGERS of Florida. And, yet, some of the professions have been included in the aid bills.

Dr. PETERSON. I am sorry, sir. I did not—

Mr. ROGERS of Florida. Well, ophthalmologists, undergraduate work. They have been included in that medical assistance bill.

Dr. PETERSON. Only insofar as it is necessary that an individual have his M.D. degree before he may engage in graduate training that would envision his certification and designation as an ophthalmologist. There is no provision in the Health Professions Assistance Act that would assist in the specialized training of such a physician.

Mr. ROGERS of Florida. Now let me ask you this: Is there anyone in HEW who has the responsibility in their division of the eye care of the American people? Do you have it broken down that way, anyone who has charge of ophthalmology, optometry, and so forth?

Dr. PETERSON. No, sir.

Mr. ROGERS of Florida. There is no such division.

Dr. PETERSON. We have no such categorical program.

Mr. ROGERS of Florida. What does it fall under?

Dr. PETERSON. It falls under two principal places in the Public Health Service. The research interests fall within the National Institute of Neurological Diseases and Blindness as this is the research arm which deals with this general project.

Mr. ROGERS of Florida. And how long has that been in existence?

Dr. PETERSON. I am sorry, sir. I would have to furnish that for the record.

Mr. ROGERS of Florida. Well, approximately. You can furnish the exact time for the record, but what would you say, approximately?

Dr. PETERSON. Oh, that approximately is 10 years.

Mr. ROGERS of Florida. Ten years.

Dr. PETERSON. And the program that addresses itself to the promotion of neurological and sensory disease preventive services is in the Bureau of State Services. This was first made an active program branch 18 months ago.

Mr. ROGERS of Florida. So for 10 years we have had this division but no survey has been done, no study to determine the need.

Dr. PETERSON. No, sir. Not to my knowledge.

Mr. BROTZMAN. Will the gentleman yield?

Mr. ROGERS of Florida. Yes.

Mr. BROTZMAN. Just one or two questions. Doctor, have you had an opportunity to hear some of the other witnesses that have appeared before this committee?

Dr. PETERSON. Yes, sir. We were here.

Mr. BROTZMAN. Now, it is my recollection that most of them testified as to a need. Are you in a position to rebut their particular testimony in this regard?

Dr. PETERSON. No, sir.

Mr. BROTZMAN. You have no facts or figures that would tend to discredit their particular testimony. Is this correct?

Dr. PETERSON. That is correct.

Mr. BROTZMAN. I have no further questions.

Mr. ROBERTS. The gentleman from Texas?

Mr. PICKLE. Dr. Peterson, I compliment you on your very frank answers, although they seem somewhat general. I suppose you just actually came to say that you cannot establish a need either way. The statement has been definitely made that there is a need for some 10,000 optometrists. You do not say whether this is too many or too little. I think you have just said that it can be either way.

Dr. PETERSON. That is correct, sir.

Mr. PICKLE. Yet in the face of that you tell us that optometry, then, should not be included under this bill because there is no need for further training of optometrists. Now, how can you say that there might be a shortage and yet there is no need?

Dr. PETERSON. I am sorry, sir, if I gave the impression that I was saying there was no need for further training of optometrists. This I did not intend to give as an impression. As a matter of fact, I would like to be sure that the committee understands that we do feel that the schools are doing a good job. We have only indicated that it is our feeling that there is a loan program available to the students of optometry that can meet their needs insofar as we are able to determine them, that it does have capacity to increase their participation if they show evidence of greater need, and that certainly if there should come a time when it would appear that this particular loan program was inadequate, I am sure the Department would bring that evidence before the committee.

Mr. PICKLE. Now, if 14 percent of the student loans go to optometry students, this would be 14 of the total 8 percent of students; is that correct?

Dr. PETERSON. No. Let me clarify that. Of all students in colleges and universities, approximately 8 percent on the average borrow under the National Defense Education Act program. Of all of the students who are in schools of optometry, there are approximately 14 percent who have borrowed or did borrow in 1963 from the National Defense Education Act program.

Mr. PICKLE. Well, would you not say this is an indication that there was a need for further training, a desire for the study of optometry, and in turn there is a need for them? Would this high percentage show that there is an interest in the need for this profession?

Dr. PETERSON. Well, it certainly indicates that among the students who are in optometry schools, they do have requirements for financial assistance as measured by this data. I think that the question that you pose is better answered by the fact that there are about 1,400 individuals who are full-time students of optometry, and obviously this number of students in our Nation is an indication of considerable interest on the part of academically qualified individuals and certainly is an indication of the stimulation that they see in the future for this particular professional pursuit.

Mr. PICKLE. Well, if there is a shortage of optometrists and you concede that there exists a very definite possibility, what yardsticks would the Department use in determining whether there is a shortage in the profession?

Dr. PETERSON. There were the——

Mr. PICKLE. Any one of the professions.

Dr. PETERSON. These were the items listed in our statement in addition to the numbers of individuals presently in the profession; the trends in supply, outlook for the future, present needs and demands in relationship to those workers in related health occupations that could be expected to mutually handle a particular disease problem (examples of this are the physiatrists, those specialists in rehabilitation medicine and physical therapists, and in this particular context it would be the optometrists and the ophthalmologists both dealing in this problem area), expected future demands, the health effects of present shortages, and the availability of students in relation to need and the adequacy of existing ways and means, public and private, for meeting such demonstrated needs.

Mr. PICKLE. Dr. Peterson, you listed approximately eight or nine criteria that you base the needs on, study of needs for optometrists. Now, have you presented this criteria to the optometrical profession? Have you asked them for their advice and counsel as to whether these needs have been met? Have you ever consulted with them?

Dr. PETERSON. I am sorry. I am not able to answer that question. I personally have not. Whether or not these have been reviewed in a general way or specifically with the profession, I cannot answer.

Mr. PICKLE. Well, let me ask you one or two more questions. Optometry loans are available now under the National Defense Education Act.

Dr. PETERSON. That is correct.

Mr. PICKLE. Did the Department approve or disapprove of that, its inclusion, when it was established?

Dr. PETERSON. Approved it.

Mr. PICKLE. Now, do you think there is a need for them to get loans under that program but not under this limited health act?

Dr. PETERSON. That is the position that the Department has recommended; yes, sir.

Mr. PICKLE. And you take that position although you say that for dentistry there is a need for both loans but not for optometrists.

Dr. PETERSON. May I clarify. The point that we made was that there is not availability for both loans. This is a very specific exclusion that is quite properly written into the Health Professions Educational Assistance Act, that when a professional school signs an agreement to provide loans under that program, none of their students pursuing medical or dental either are eligible for loans under the National Defense Education Act. They may only borrow under one program. There is not a double loan program here.

Mr. PICKLE. All right. Now, you say that there is, then, a need for dentistry or medicine to be included on both programs. There is a study. A study had been made to show that there is need for inclusion in both of those.

Dr. PETERSON. Under the Health Professions Assistance Act; yes, sir.

Mr. PICKLE. But not for optometry.

Dr. PETERSON. That is correct.

Mr. PICKLE. And yet you would say, then, that there is no study for either optometrists or ophthalmologists.

Dr. PETERSON. That is correct.

Mr. PICKLE. That you include the ophthalmologists by virtue of the fact they are attached to the medical profession.

Dr. PETERSON. May I again—we have proposed to you with documentation that dentists and physicians were in substantial short supply. We presented evidence to you of documented need and of the jeopardy that such shortage would bring to the health of the people of the country. We did not at any time bring evidence nor ask for assistance for the specialized training of physicians to become ophthalmologists. The student loan program under the Health Professions Educational Assistance Act is designed only to support students in need during the time that they are in their professional academic courses.

Mr. PICKLE. You would have let assistance go to the medical or dentist profession but not to the optometric profession.

Dr. PETERSON. No. We are very happy that they have assistance, and if they were not eligible and were not participating, and if it did not appear that the ceilings both for annual and total loans as authorized under NDEA were adequate, and if it did not appear that the interest rates that were charged under this were reasonable, in fact more favorable, we would certainly bring this to your attention. But, as we have pointed out, it would appear to us that there are adequate resources within the NDEA.

Mr. PICKLE. Based on what?

Dr. PETERSON. Based on several things. One, as nearly as we can determine, the cost of optometric education. Two, based upon the

present average loan that is being taken by optometry students we believe that they have adequate resources within the NDEA, and, especially since there are increased funds that are to be made available, these should be able to meet the loan requirements of optometry students in the years ahead.

Mr. PICKLE. You have mentioned that although you have no survey, that a study is being conducted now by the National Institute of Neurology as it affects blindness diseases.

Dr. PETERSON. They have many research projects, and I think, if I understood Mr. Rogers properly, he was asking that we provide a list of projects and of grants that were related to such studies. Remember that the National Institute of Neurological Diseases and Blindness, however, principally concerns itself with eye pathology and eye disease and refractive errors from a research point of view, and not from a study of manpower per se.

Mr. PICKLE. Doctor, that is the point I am trying to make. There is no study which concerns itself with vision, only that which affects blindness or disease.

Dr. PETERSON. Not necessarily, sir. I am sorry. I said that the Institutes do not concern themselves with studies of professional manpower per se but with diseases of the eye and other neurological and sensory problems.

Mr. PICKLE. And is there any kind of study with respect to vision and vision needs of the country conducted by your department or by some allied agency with which the Department would be associated?

Dr. PETERSON. There are some. I am not in a position now to recount those to you. However, as we have indicated to Mr. Rogers, we will be happy to provide those for the record.

Mr. PICKLE. I will be looking forward to those, and I am surprised that you would say that there is no study being made, and yet you tell us that you are opposed to the bill because there is no need for additional training of or additional loans to optometric students.

I yield to the gentleman from Florida.

Mr. ROBERTS. The gentleman from Florida.

Mr. ROGERS of Florida. Dr. Peterson, you are Associate Chief for Operations, Bureau of State Services, is that correct?

Dr. PETERSON. That is correct.

Mr. ROGERS of Florida. Now, let me ask you this. Is it within the Bureau of State Services to determine whether a department—do you make the first recommendations as to whether a department would support a bill of this nature concerning optometry?

Dr. PETERSON. As a matter of fact, probably not, sir.

Mr. ROGERS of Florida. Who does that? Who would do that first?

Dr. PETERSON. Usually, and I would imagine that such was the case in this particular instance, the Secretary would ask each of the constituent agencies of the Department that has cognizance in this to provide him with a statement on the bill for his determination.

Mr. ROGERS of Florida. There is no one area that would take responsibility for this?

Dr. PETERSON. No, sir.

Mr. ROGERS of Florida. It is all the Department there.

Dr. PETERSON. Well, the Office of Education would participate, the Public Health Service, and any other of the constituents that would

be involved in this—Welfare Administration, and so on—to give their recommendation.

Mr. ROGERS of Florida. Now, who would determine when there was a study to determine the visual needs of the country be made? Would that be made in your department?

Dr. PETERSON. Yes, sir; that probably would be made within the Public Health Service, and at the present time the immediate office of the Surgeon General is the principal focus for studies on health manpower. There are, however, other places in the Service that do conduct such studies.

Mr. ROGERS of Florida. Who?

Dr. PETERSON. For the nurses.

Mr. ROGERS of Florida. I am thinking of optometry, sir, visual care. I am not interested in getting into nurses and dentists. I am talking about this problem. Who has the responsibility in this field is what I want to know?

Dr. PETERSON. This would be a part of the overall concern of the immediate staff of the Office of the Surgeon General to decide.

Mr. ROGERS of Florida. And there is no one branch under him that will have responsibility in this field. It is not your branch?

Dr. PETERSON. No; not necessarily, sir. That has not been—

Mr. ROGERS of Florida. Well, is it or is it not?

Dr. PETERSON. No, sir; it is not.

Mr. ROGERS of Florida. It is not. It would be the Institute—

Dr. PETERSON. No, sir; as I say, it would be within the immediate office of the Surgeon General, his immediate staff that is now doing studies in manpower, the Division of Public Health Methods.

Mr. ROGERS of Florida. Well, then, you really cannot speak for the Department as to say whether or not a study is going to be made or should be made or what. Is that true?

Dr. PETERSON. I would not be able to speak for the Department as to—

Mr. ROGERS of Florida. Well, even for the Surgeon General.

Dr. PETERSON. In appearing before you today, I would feel completely comfortable, Mr. Rogers, in indicating to you to the best of my knowledge on behalf of the Surgeon General his position with reference to such matters.

Mr. ROGERS of Florida. Well, I am not trying to embarrass you.

Dr. PETERSON. I know. And I am not trying—

Mr. ROGERS of Florida. But I want to get to the point of some commitment as to whether we are going to have a study or whether we are not, whether it is—what the situation is going to be, and if you can speak with authority for the Surgeon General, then I want to know, and I think this committee is entitled to know, whether we are going to have a sufficient study to be able to let us intelligently legislate with Department recommendations where they have some knowledge before they make recommendations.

Dr. PETERSON. As I indicated earlier, sir, it is my understanding that there have been discussions between the Optometric Association and the Office of the Surgeon General with reference to possible studies. It is the exact state of those negotiations and commitments with which I am not conversant. However, I am sure, knowing as I do know the general concerns of the Public Health Service in professional manpower

problems, that optometry along with many other professions of the various health groups will be brought under study, and, as has been the case with medicine, dentistry, nursing, and other professions, that these will be joint endeavors where the profession itself will assume substantial responsibilities along with the Public Health Service for data gathering and interpretation.

Mr. ROGERS of Florida. Yes; well, I think the services have already done that survey by giving the committee the facts. This has already been done. Now, would you let us have a letter from the Surgeon General; take this message back to him. That I think the committee would like to know the specific facts as to when such a survey might be conducted, who is going to do it and then, when we can expect its conclusion. We would like to have that.

Thank you, Mr. Chairman.

Mr. ROBERTS. I think the gentleman from Florida certainly is within his rights in wanting this information. I think the committee would be greatly benefited if we had some sort of a timetable set up by the Surgeon General as to when we might expect a study to be made or whether it should be made.

Any other questions, gentlemen?

Mr. BROTZMAN. Mr. Chairman, I would like to know as soon as possible what the Surgeon General might say in regard to the question raised by the gentleman from Florida. By that I mean I would be interested in knowing immediately when you have that information.

Dr. PETERSON. I will be happy to convey it to you.

Mr. ROBERTS. Any other questions?

Mr. ROGERS of Florida. I would just like to point out this bill was introduced September 24, 1963. The Department has had almost a year to be advised of our need for some knowledge from the Department on it.

Mr. ROBERTS. Thank you, Dr. Peterson for your appearance before the committee.

Dr. PETERSON. Thank you, sir.

(The following information was later submitted by the Department of Health, Education, and Welfare:)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
Washington, D.C., July 10, 1964.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Public Health and Safety,
Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington, D.C.

DEAR MR. ROBERTS: This letter is in response to your request to Dr. Paul Q. Peterson at hearings before your subcommittee on June 22, 1964, for information on the status of negotiations between the Public Health Service and the American Optometric Association regarding the possibilities for preparing a health manpower source book on optometry.

As you may know, in 1952 the Division of Public Health methods of the Public Health Service began a series of source books on health manpower. The publications in this series are listed on the inside of the back cover of section 17, a copy of which is enclosed.

On May 5, 1964, Dr. W. Judd Chapman, president of the American Optometric Association, wrote to Dr. Richard A. Prindle, Chief of the Division of Public Health Methods, saying that he had been reading the source books and was interested in discussing the possibilities for a health manpower source book on optometry. On May 26, 1964, Dr. Prindle wrote Dr. Chapman that at the

present time the Public Health Service had neither the funds nor the staff for such a study, but that he was hopeful that such an undertaking could be arranged during the next fiscal year (i.e., fiscal year 1965).

In keeping with the nature of the source book series, the source book would be expected to provide information on the numbers of optometrists; their location; personal characteristics such as age, sex, and years of work experience; type of employment; earnings; educational status of present personnel; enrollment and capacity of schools; and current and future supply of optometrists in relation to other health workers.

You will be interested in knowing that information on optometrists has been included in several of the sections of the source books. Information on optometrists available from the 1950 Census of Population was included in sections 4 and 5 of the source books; from the 1960 Census of Population, in section 17 (enclosed). The 1960 data are presented in two tables (on pp. 42 and 43 of sec. 17) which cover such items as numbers in the experienced civilian labor force and employed, sex, urban and rural residence, and ratio to population by State.

Dr. Peterson advises me that he is forwarding the other materials the subcommittee requested for the record under separate cover. Should there be a further question please let me know.

Sincerely yours,

Dr. LUTHER L. TERRY, *Surgeon General.*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
PUBLIC HEALTH SERVICE,
BUREAU OF STATE SERVICES,
Washington, D.C., July 7, 1964.

Memorandum to: Mr. James Menger, staff officer, Committee on Interstate and Foreign Commerce, House of Representatives.

From: Paul Q. Peterson, M.D., Assistant Surgeon General, Associate Chief for Operations.

Subject: PHS research studies and projects related to vision.

As requested in the hearings before the Subcommittee on Public Health and Safety of the Committee on Interstate and Foreign Commerce on June 22, 1964, enclosed are copies of the listings of research studies and demonstration projects being supported by the National Institutes of Health and the Bureau of State Services of the Public Health Service on problems of vision and eye diseases as they relate to the visual sciences.

Also, as requested, I am providing the name of Dr. Ralph D. Gunkel, a graduate of a school of optometry, who is presently employed within the Public Health Service at the National Institute of Neurological Diseases and Blindness in the Ophthalmology Branch.

Enclosures (4):

1. Research grants listed in visual sciences study section (from 1963 Research Grants Index).
2. Supplementary list of grants related to vision, active in 1963, but not included in (1) above.
3. BSS projects in vision and loss of vision.
4. Neurological and sensory disease program vision studies.

[Enclosure 1]

VISUAL SCIENCES

- AI-01931-3 Eisele, C. W., Sch. Med., U. Colorado, Denver. Toxoplasmosis in reaction to disease of the eye.
- AI-02763-5 Burns, R. P., Med. Sch., U. Oregon, Portland. Study of recurrent and potential ocular.
- AM-06966-2 Farkas, T. G., Sch. Med., Univ. Chicago, Illinois. Mechanism of development of diabetic cataracts.
- AM-02954-5 Patterson, J. W., Sch. Med., Vanderbilt U., Nashville, Tennessee. Experimental cataracts.
- CA-06383-2 Rose, L., Presbyterian Med. Cr., San Francisco. Hematoporphyrin in intraocular malignancy detection.
- CA-06481-3 Burns, R. P., Med. Sch., U. Oregon, Portland. Intraocular malignant melanoma of the hamster.

- CA-06864-1 Baum, G., Bronx Veteran's Hosp., N.Y. Differential diagnosis by ultrasonography.
- GM-09495-2 Carpenter, R. L., Tufts U., Medford, Mass. Biological effects of microwave radiation.
- HE-07250-2 Aronstam, R. H., USPHS Hosp., Staten Island, N.Y. Retinal vascular changes in essential hypertension.
- MH-05756-2 Wolin, L. R., Psy. Res. Fdn., Cleveland, Ohio. Visual impairment in neuropsychiatric disorders.
- MH-08237-1 Beck, L. H., Ypsilanti State Hosp., Ypsilanti, Mich. Visual functions in the schizophrenic.
- NB-00043-15 Maumenee, A. E., Sch. Med., Johns Hopkins U., Baltimore. A study of the etiology and treatment of uveitis.
- NB-00044-12 Hogan, M. J., Sch. Med., U. California, Berkeley. Investigations on ocular toxoplasmosis.
- NB-00121-12 Ballantine, E. J., Sch. Med., Western Reserve Univ., Cleveland, Ohio. Ciliary body metabolism.
- NB-00188-10 Thomas, C. I., Sch. Med., Western Reserve U., Cleveland. Radioactive isotopes in diseases of the eye.
- NB-00213-11 Roberts, R. W., Sch. Med., Wake Forest C., Winston-Salem. Glaucoma study.
- NB-00218-11 Grant, W. M., Massachusetts Eye and Ear Infirmary, Boston, Mass. Pressure regulating mechanisms in glaucoma.
- NB-00237-11. James, R. G., C. Med. State U. Iowa, Iowa City. Ocular changes in diabetes.
- NB-00253-1 Lowenfeld, I. E., Col. Phys. Surg., Columbia Univ., N.Y.C. Pupillography, physiological and clinical research.
- NB-00294-10 Bender, M. B., Mount Sinai Hosp., N.Y.C. The oculomotor system and body postural mechanisms.
- NB-00349-10 Burian, H. M., State U. Iowa, Iowa City. Electrical responses of human visual system.
- NB-00471-9 Straatsma, B. R., U. California Med. Cr., Los Angeles. Types of cautery for surgery of detached retina.
- NB-00568-10 Hubbard, R., Grad. Sch., Harvard U., Cambridge, Mass. Chemistry of vision.
- NB-00621-9 Becker, B., Sch. Med., Washington U., St. Louis, Mo. Rate of flow of aqueous humor in the rabbit eye.
- NB-00624-10 Boynton, R. M., Col. Arts, Sc., U. Rochester, N.Y. Psychophysical and optical studies of normal and abnormal visual function.
- NB-00640-9 Zacharias, L., Mass. Eye, Ear Inf., Boston. Study of mild and severe retrolental fibroplasia.
- NB-00786-9 Hogan, M. J., Sch. Med., U. California, San Francisco. Studies on ocular toxoplasmosis.
- NB-00810-8 Sloan, L. L., Sch. Med., Johns Hopkins U., Baltimore. Optical aids for subnormal vision and other studies in physiological optics.
- NB-00864-8 Hartline, H. K., Rockefeller Inst., N.Y.C. Electrical activity of single receptors and neurons of the eye.
- NB-00911-8 Breinin, C. M., New York U. Med. Cr., N.Y.C. Electromyography of the extraocular muscles.
- NB-01010-8 Halbert, S. P., Col. Phys., Surg., Columbia Univ., N.Y.C. Immunological observations on ocular lens in evolution and cataract.
- NB-01027-5 Stone, W., Jr., Mass. Eye, Ear Inf., Boston. Alloplastic substitution for opacification of cornea.
- NB-01099-7 Hogan, M. J., Sch. Med., Univ. California, San Francisco, Calif. Investigations on endogenous uveitis.
- NB-01100-7 Kinsey, V. E., Kresge Eye Inst., Detroit, Mich. Intraocular fluid dynamics.
- NB-01130-7 Chi, H. H., Eye Bank Sight Restoration, N.Y.C. Studies of the corneal endothelium.
- NB-01142-7 Merriam, G. R., Jr., Med Sch., Columbia Univ., N.Y.C. Lens proteins in radiation cataracts.
- NB-01161-7 Georgiade, N. G., Sch. Med., Duke U., Durham, N.C. The prolonged preservation of corneal grafts in a viable state.
- NB-01201-7 Gardner, E., Sch. Med., Wayne State U., Detroit, Mich. Visual systems—Pure rod and cone retinae.
- NB-01229-7 Hogan, M. J., Sch. Med., Univ. California, San Francisco. Electron microscopy of the limbus.

- NB-01233-7 Ditchburn, R. W., Sch. Physics, Univ. Reading, Reading, England. Eye movements in visual perception.
- NB-01325-7 Breinin, G. M., New York U. Med. Cr., N.Y.C. Optical and electrophysiologic studies in accommodation and convergence.
- NB-01326-4 Solones, M. P., Gen. Hosp., Calles de Balmis and Pasteur, Mexico, D.F., Mexico. Intraocular pressure in Indians, Mestizos, and Whites.
- NB-01348-7 Zeller, E. A., Sch. Med., Northwestern Univ., Evanston, Ill. Protein metabolism of refractory media of the eye.
- NB-01349-7 Miller, J. E., Sch. Med., Washington U., St. Louis, Mo. Electromyographic study of oculomotor function.
- NB-01354-5 Stone, W., Jr., Mass. Eye, Ear Infirmary, Boston, Mass. Anterior chamber drainage tubes.
- NB-01375-6 Constant, M. A., Washington U., St. Louis, Mo. Lens in health and disease.
- NB-01392-6 Allen, E. L., State Univ., Iowa, Iowa City. Reconstruction models on chamber angle structures.
- NB-01404-5 Simonson, E., Univ. Minnesota, Minneapolis, Minn. Excitability of visual pathways.
- NB-01408-6 Lipez, L. E., Grad. Sch., Ohio State U., Res. Fdn., Columbus. Excitation and inhibition in vertebrate retina.
- NB-01413-6 Malis, L. I., Mount Sinai Hosp., N.Y.C. Interaction in the visual pathways.
- NB-01438-6 Young, F. A., Grad. Sch., Wash. State Univ., Pullman. Effect of restricted visual space on ocular functions.
- NB-01453-6 Riggs, L. A., Grad. Sch., Brown U., Providence, R.I. Human ERG in response to monochromatic light.
- NB-01482-6 Wolf, E., Retina Fdn., Boston, Mass. Visual sensitivity in the normal and abnormal retina.
- NB-01509-5 Crescitelli, F., Grad. Sch., U. California, Los Angeles. Electrophysiological analysis of the visual system.
- NB-01516-6 Sery, T. W., Wills Eye Hosp., Philadelphia. Response of corneal stroma to injections of proteins.
- NB-01521-6 de Roeth, A., Jr., Sch. Med., Columbia Univ., N.Y.C. Experimental diabetic retinopathy.
- NB-01534-5 Hitz, J.B., Sch. Med., Marquette U., Milwaukee, Wis. Histologic studies of the regenerative processes of the eye.
- NB-01578-5 Alpern, M., Med. Sch., U. Michigan, Ann Arbor. Psychophysiological studies of ocular abnormalities.
- NB-01586-6 Smith, O. W., Cornell Univ., Ithaca, N.Y. Development of distance perception in children.
- NB-01587-5 Wise, G. N., Sch. Med., New York Univ., N.Y.C. Neovascularization of retinal vascular diseases.
- NB-01637-6 Ogle, K. N., Mayo Assn., Rochester, Minn. Depth of focus of the human eye.
- NB-01689-6 Armaly, M. F., Sch. Med., State U. Iowa, Iowa City. Neurogenic regulation of intraocular pressure.
- NB-01741-5 Howe, A. F., Retina Fdn., Boston. Structure and function of the blood-vitreous barrier.
- NB-01782-5 Hogan, M. J., Sch. Med., Univ. California, Berkeley. Electron microscopy of eye structures.
- NB-01789-5 Cibis, P. A., Sch. Med., Washington U., St. Louis, Mo. Ocular siderosis and hemosiderosis.
- NB-01810-5 Pirenne, M. H., U. Oxford, England. Vision and light quanta.
- NB-01820-5 Schwartz, B., State Univ. N.Y., Brooklyn. Metabolism of lens cultured in a perfusion system.
- NB-01851-5 Donaldson, D. D., Sch. Med., Harvard U., Cambridge, Mass. Instrumentation in ophthalmology.
- NB-01852-5 Ogle, K. N., Mayo Assn., Rochester, Minn. Critical factors in stereoscopic depth perception.
- NB-01853-5 Leopold, I. H., Wills Eye Hosp., Philadelphia, Pa. Metabolic studies on anterior uvea.
- NB-01903-5 Brown, K. T., Sch. Med., U. California, Berkeley. Intraretinal recording in unopened mammalian eyes.
- NB-01922-5 Allen, M. J., Indiana U., Bloomington. The influence of age on the control of accommodation.
- NB-01923-5 Kropf, A., Amherst Col., Mass. Photochemistry of the visual pigments.

- NB-01942-5 Donaldson, D. D., Sch. Med. Harvard U., Cambridge, Mass. Subjective color phenomena.
- NB-01971-5 Blackwell, H. R., Sch. Med., Ohio State U., Columbus. Neural time-space mechanisms and reading disabilities.
- NB-01979-5 Harris, J. E., U. Minnesota, Minneapolis. Movement of water and solutes across ocular barriers.
- NB-02002-3 Von Noorden, G. K., Col. Med., State U. Iowa, Iowa City. Transmission time and perceptual blanking in strabismic amblyopia.
- NB-02003-5 Rucker, C. W., Mayo Assn., Rochester, Minn., Pupillography in diseases of central nervous system.
- NB-02058-5 Leopold, I. H., Wills Eye Hosp., Philadelphia, Pa. Corticosteroids in aqueous humor of humans and rabbits.
- NB-02062-5 King, J. H., Jr., Washington Hosp. Cr., Washington, D.C. The preservation of eye tissues for transplantation.
- NB-02113-4 Jacobson, J.H., N.Y. Eye and Ear Infirmary, N.Y.C. Electrophysiology of accommodation.
- NB-02156-4 Flocks, M., Sch. Med., Stanford U., Cal. Use of light coagulation in human and animal eyes.
- NB-02165-4 Jones, R. W., Northwestern U., Evanston, Ill. Dynamics of the visual system.
- NB-02168-4 Enoch, J. M., Sch. Med., Washington U., St. Louis, Mo. The etiology of reduced visual function.
- NB-02198-4 Patz, A., Sch. Med., Johns Hopkins U., Baltimore, Md. Metabolic studies on the retina and retinal vessels.
- NB-02201-4 Blackwell, H. R., Sch. Med., Ohio State Univ., Columbus, Ohio. Visual mechanisms in normal and abnormal retinae.
- NB-02205-4 Brown, J. L., Sch. Med., U. Pennsylvania, Philadelphia. Physiological and psychophysical aspects of vision.
- NB-02207-4 Kupfer, C., Mass. Eye, Ear Infirmary, Boston, Mass. The control of intraocular pressure.
- NB-02208-4 Enroth-Cugell, C., Sch. Med., Northwestern U., Evanston, Ill. Retinal ganglion cell responses to time varying stimuli.
- NB-02212-4 Holland, M. G., Tulane U., New Orleans, La. Physiology and pharmacology of aqueous humor flow.
- NB-02220-4 Dohlman, C. H., Retina Fdn., Boston. Corneal dehydration, wound healing and grafting.
- NB-02274-4 De Valois, R. L., Grad. Sch., Indiana U., Bloomington. Electrophysiology of color vision.
- NB-02334-4 Spector, B., Tufts U. Sch. Med., Boston, Mass. Immunologically induced bilateral eye reactions.
- NB-02343-4 Donn, A., Columbia Univ., N.Y.C. Physiologic studies of the living cornea in vitro.
- NB-02403-5 Cohen, J., Sch. Med., Northwestern U., Chicago, Ill. Interdisciplinary study of blindness in children.
- NB-02410-5 Maumenee, A. E., Johns Hopkins U., Baltimore. Involvements affecting the visual pathways.
- NB-02412-5 Becker B., Sch. Med., Washington Univ., St. Louis, Mo. Collaborative glaucoma study.
- NB-02415-5 Shaffer, R. N., Univ. California Med. Cr., San Francisco, Calif. Collaborative glaucoma detection study.
- NB-02419-5 Maumenee, A. E., Sch. Med., Johns Hopkins Univ., Baltimore, Md. Collaborative glaucoma study.
- NB-02423-4—Armaly, M. F., Sch. Med., State Univ. Iowa, Iowa City, Iowa. Collaborative glaucoma study.
- NB-02430-4—Hargens, C. W., Franklin Inst., Philadelphia. Glaucoma detection method suited for mass screening.
- NB-02485-4 Blough, D. S., Brown U., Providence, R.I. Psychophysical studies of vision in monkeys.
- NB-02521-4 Potts, A. M., U. Chicago, Ill. Nutrition, metabolism of eye avascular structures.
- NB-02522-4 Potts, A. M., Sch. Med., U. Chicago, Ill. Experimental and clinical electroretinography.
- NB-02530-3 Brecher, G. A., Emery U., Atlanta, Ga. Normal and abnormal corneo-retinal potential.
- NB-02539-2 Bender, M. B., Mount Sinai Hosp., New York, N.Y. A symposium on the oculomotor system.

- NB-02542-4 Kimura, S. J., Sch. Med., U. California, San Francisco. Fluorescein-labeled antibody studies in uveitis.
- NB-02555-3 Krishna, N., Wills Eye Hosp., Philadelphia. Monoamine oxidase and inhibitors in ocular tissues.
- NB-02556-4 Kupfer, C., Mass. Eye, Ear Inf., Boston. Development of anterior chamber angle in the human eyes.
- NB-02561-4 McEwen, W. K., Sch. Med., Univ. California, San Francisco, Calif. Glaucoma studies.
- NB-02588-4 Munz, F. W., U. Oregon, Eugene. The succession of visual pigments in salmon and trout.
- NB-02589-4 Goodman, G., Sch. Med., New York Univ., N.Y.C. Electroretinography and psychophysical studies in retinal disorders.
- NB-02591-4 Langham, M. E., Sch. Med., Johns Hopkins U., Baltimore, Md. Intraocular dynamics and glaucoma.
- NB-02623-4 Teng, C. C., Eye-Bank for Sight Restoration, Inc., N.Y.C. Electron microscope study of corneal dystrophy.
- NB-02633-4 Jampolsky, A., San Francisco Inst. Med. Sci., San Francisco, Calif. Electrophysiology of the visual apparatus.
- NB-02634-4 Bettman, J. W., San Francisco Inst. Med. Sch., Calif. Agents affecting the intraocular circulation.
- NB-02660-4 Benolken, R. M., Grad. Sch., U. Minnesota, Minneapolis. Visual mechanisms.
- NB-02661-4 Harcum, E. R., Col. Arts, Sci., C. William and Mary, Williamsburg, Va. Normal perception in reading and learning problems.
- NB-02664-4 Nunnemacher, R. F., Grad. Sch., Clark Univ., Worcester, Mass. Optics and neural pathways of compound eyes.
- NB-02667-4 Campbell, C. J., Col. Phy., Surg, Columbia Univ., N.Y.C. Spectral response characteristics of the retina.
- NB-02678-4 Binder, H. F., Sch. Med., Western Reserve U., Cleveland, Ohio. Regeneration of ocular tissues.
- NB-02681-4 Symmes, D., Sch. Med., Yale U., New Haven, Conn. Neural basis of visual and auditory fusion in monkey.
- NB-02698-3 Cogan, D. G., Sch. Med., Harvard U., Cambridge, Mass. Electron microscopy of retinal dehydrogenases.
- NB-02709-3 Straatsma, B. R., Sch. Med., U. California, Los Angeles. Environment and drugs in the human refractive state.
- NB-02710-4 Noel, W.K., Sch. Med., State Univ. N.Y., Buffalo, N.Y. Metabolic and functional development of the retina.
- NB-02801-3 Jacobson, J. H., N.Y. Eye, Ear Infirmary, N.Y.C., Clinical electroretinography.
- NB-02861-3 Troutman, R. C., State Univ., Downstate Med. Ctr., N.Y., Albany. The use of acrylics in animal and human eyes.
- NB-02863-3 Walsh, F. B., Sch. Med., Johns Hopkins U., Baltimore. Neuro-pathology, clinical ophthalmological diagnosis.
- NB-02866-3 Allen, R. A., Sch. Med., U. California, Los Angeles. The eye—Growth, aging—Changes in systemic disease.
- NB-02873-3 Wolter, J. R., U. Michigan, Med. Cr., Ann Arbor. Neuropathology of the human eye.
- NB-02885-3 Reddy, D. V. N., Kresge Eye Inst., Detroit. Intraocular transport of carbohydrates.
- NB-03014-3 Rushton, W. A. H., Sch. Med., U. Cambridge, England. The nature of the visual process in the retina.
- NB-03015-3 Cogan, D. G., Med. Sch., Harvard U., Cambridge, Mass. Metabolic histochemistry of the retina.
- NB-03016-3 Firschein, H. E., New York U., Med. Cr., N.Y.C. Parathyroid hormone and cataract formation.
- NB-03040-3 Maumenee, A. E., Johns Hopkins U., Baltimore. Studies in ocular hypersensitivity.
- NB-03050-3 Levene, R. Z., New York Univ. Med. Sch., N.Y.C. Evaluation of diagnostic techniques for glaucoma.
- NB-03060-3 Barany, E., Sch. Med., Uppsala U., Uppsala, Sweden. Physiology and pharmacology of ocular pressure.
- NB-03062-3 Hart, W. M., Eye Res. Fdn., Bethesda, Md. Cataract as a function of growth and maturation.
- NB-03067-3 Pitel, M., Sch. Med., Dent., Univ. Rochester, N.Y. Normal and cataractous fetal lens of the rat.

- NB-03076-3 Waterman, T. H., Yale Univ., New Haven, Conn. Comparative physiology of compound eyes.
- NB-03081-3 Lerman, S., Sch. Med., Dent., U. Rochester, N.Y. The metabolism of the normal and cataractous lens.
- NB-03093-3 Beale, J. P., Jr., Children's Hosp., San Francisco. Evaluation of pleoptics.
- NB-03129-3 Nolan, C. Y., American Printing House, Blind, Louisville. Cues in the tactual perception of patterns.
- NB-03142-2 Dellaporta, A., Sch. Med., Stanford U., Stanford, Cal. Idiopathic retinal detachment in collie dogs.
- NB-03154-2 Westheimer, G., Sch. Optometry, U. California, Berkeley. Fundamental problems retinal functions.
- NB-03177-2 Chatzinoff, A. B., Downstate Med. Cr., State U. New York, Brooklyn. Eleven-cis vitamine A. in the treatment of retinitis pigmentosa.
- NB-03215-3 Fisher, E., Jr., Sch. Med., Tulane Univ., New Orleans, La. Action of proteolytic enzymes on corneal tissue.
- NB-03216-3 Newell, F. W., Sch. Med., Univ. Chicago, Ill. Distribution of tritiated acetazolamide.
- NB-03217-3 Klein, B. A., Sch. Med., U. Chicago, Ill. Retinal disease—Clinical and histochemical correlation.
- NB-03219-3 Binder, R. F., Sch. Med., Western Reserve Univ., Cleveland, Ohio. The clotting system of the eye.
- NB-03240-3 Richards, R. D., Sch. Med., U. Maryland, College Park. Fluorescence in lens epithelium after x-irradiation.
- NB-03284-3 O'Rourke, J., Georgetown Univ. Med. Cr., Washington, D.C. Cannulation—Perfusion study of the ocular arteries.
- NB-03291-3 Zweng, H. C., Palo Alto Med. Res. Fdn., Cal. Plasmin therapy of retinal vessel thrombosis.
- NB-03292-3 Jesberg, D. O., Sch. Med., U. California, Berkeley. Etiologic studies in developmental eye defects.
- NB-03370-2—Balazs, E. A., Retina Fdn., Boston, Mass. studies on the connective tissues of the eye.
- NB-03412-2 Cornsweet, T. N., U. California, Berkeley. Spatial interaction in the stabilized retinal image.
- NB-03413-2 Purnell, E. W., Western Reserve Univ., Cleveland, Ohio. Study of eye physiology and disease by ultrasound.
- NB-03417-2 Drance, S. M., Sch. Med., U. Saskatchewan, Canada. Comparison of carbonic anhydrase from different sources.
- NB-03443-2 Wittgenstein, E., Children's Hosp. Res. Fdn., Cincinnati, Ohio. Biochemical studies on normal and cataractous lenses.
- NB-03444-1 Stone, L. S., Sch. Med., Yale U., New Haven, Conn. Vision in transplanted eyes and regeneration of lens, iris and retina.
- NB-03445-2 Moses, R. A., Sch. Med., Washington Univ., St. Louis, Mo. Experimental granulomatous uveitis.
- NB-03446-2 Barber, G. W., Wills Eye Hosp., Philadelphia, Pa. Studies on lens metabolism.
- NB-03448-2 Pappas, G. D., Sch. Med., Columbia Univ., N.Y.C. E.M. study of eye and vascular fluid dynamics.
- NB-03452-2 Kelly, S. J., U. Alabama Med. Cr., Birmingham. A miniature pressure telemeter.
- NB-03457-2 Riegelman, S., Sch. Phar., U. California, Berkeley. Corneal permeability to corticosteroids and other drugs.
- NB-03538-2 Kaufman, H. E., Col. Med., U. Florida, Gainesville. Ocular herpes simplex.
- NB-03576-2 Christensen, R. E., Sch. Med., Univ. California, Los Angeles. Early glaucoma—Functional and structural correlation.
- NB-03582-1 MacNichol, E. F., Jr., Sch. Arts, Sci., Johns Hopkins Univ., Baltimore, Md.
- NB-03583-2 Shaffer R. N., Sch. Med., U. California, San Francisco. Glaucoma conference.
- NB-03590-2 Chapman, R. M., U. Maryland, College Park. Visual mechanisms for wavelength discrimination.
- NB-03623-2 Bettman, J. W., Presbyterian Med. Cr., San Francisco, Calif. Experimental cataracts.
- NB-03667-2 Rodriguez-Peralta, L., Sch. Med., Temple U., Phila., Pa. Histo-logic locus of the blood ocular barrier.

- NB-03682-2 Nachmias, J., U. Pennsylvania, Philadelphia. Relation of visual acuity to apparent brightness.
- NB-03689-2 Freeman, R. G., Col. Med., Baylor U., Houston, Tex. Photosensitization of the eye.
- NB-03711-2 Sippel, T. O., Sch. Med., U. Michigan, Ann Arbor. Respiratory metabolism of the lens.
- NB-03721-2 Wulff, V. J., Masonic Med. Res. Lab., Utica, N.Y. A study of photoreception in *Limulus*.
- NB-03739-2 Scott, A. B., Presbyterian Med. Cr., San Francisco. Therapy of epithelization of the anterior chamber.
- NB-03750-2 DeVoe, R., Sch. Med., Johns Hopkins U., Baltimore, Md. Analysis of spider flicker retinal potentials.
- NB-03770-2 McGinnis, J., Grad. Sch., Wash. State Univ., Pullman, Wash. Eye and brain damage in birds under continuous light.
- NB-03771-2 Wilson, F. M., Sch. Med., Indiana U., Indianapolis. Permeability studies in experimental uveitis.
- NB-03781-2 Sears, M. L., Sch. Med., Yale U., New Haven, Conn. Physiologic studies of aqueous outflow resistance.
- NB-03785-2 Straatsma, B. R., Sch. Med., U. California, Los Angeles. Adhesive compounds as an aid in ocular surgery.
- NB-03788-2 Weimar, V. L., Sch. Med., U. Oregon, Portland. The reaction of connective tissue cells to injury.
- NB-03807-2 Young, R. W., Sch. Med., U. California, Los Angeles. Histophysical and histochemical studies on the eye.
- NB-03827-2 Dzendolet, E., Grad. Sch., U. Massachusetts, Amherst. Relation of internal retinal potentials to the ERG.
- NB-03832-1 Holmberg, A. S., Karolinska Inst., Stockholm, Sweden. Electron microscopic analysis of trabecular meshwork.
- NB-03843-2 Hill, R. M., Sch. Optometry, U. California, Berkeley. Single cell wavelength responses of the Belgian hare.
- NB-03866-2 Noell, W. K., Sch. Med., U. Buffalo, N.Y. Ion fluxes across mammalian retina.
- NB-03870-2 Tomita, T., Sch. Med., Keio U., Tokyo, Japan. Comparative study of the vertebrate electroretinogram.
- NB-03934-2 Ludvigh, E. J., II, Kresge Eye Inst., Detroit. Dynamics of binocular ductions.
- NB-03951-2 Hoyt, W. F., Sch. Med., U. California, San Francisco. Study of nerve fibers in the anterior visual system.
- NB-03954-1 Kaufman, H. E., Sch. Med., U. Florida, Gainesville. Ocular toxoplasmosis.
- NB-03974-2 Kroman, H. S., Sch. Med., Hahnemann Med. C., Philadelphia. Corticosteroids in the eye of humans and rabbits.
- NB-04024-3 Hanna, C., Sch. Med., Univ. Arkansas, Little Rock, Ark. Biochemical studies in lens cataract formation.
- NB-04048-1 Sugar, H. S., Sinai Hosp., Detroit, Mich. Antiglaucoma action of cyclodialysis in dogs.
- NB-04106-1 Friedman, E., Massachusetts Eye, Ear Infirmary, Boston, Mass. Retinal microcirculation.
- NB-04125-1 Fromm, P. O., Grad. Sch., Michigan State U., East Lansing. Study of eye disease in hatchery reared lake trout.
- NB-04140-1 Spalter, H. F., Columbia U. C. Phys., Surg., N.Y.C. Autoimmunity in experimental and human uveitis.
- NB-04194-1 Sjostrand, F. S., U. California, Los Angeles. Extracellular space in retina and CNS.
- NB-04218-1 Thomas, R. P., Med. C. Georgia, Augusta. Systemic manifestations of open angle glaucoma.
- NB-04228-1 Allen, R. A., Sch. Med., Univ. California, Los Angeles. Ultrastructure of retinal bipolar cells.
- NB-04229-1 Levine, R. Z., New York U. Med. C., N.Y.C. Experimental diabetic retinopathy.
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- NB-94233-2 Duane, T. D., Jefferson Med. Col., Philadelphia Plethysmographic occlusion of the ophthalmic artery.
- NB-04242-1 Flom, M. C., Sch. Optometry, U. California, Berkeley. Contour interaction and fixation tremor in amblyopia.

- NB-04285-2 Frayser, R., Med. Cr., Indiana U., Indianapolis. Study of the retinal circulation.
- NB-04334-1 Dennis, W. H., Sch. Med., Univ. Louisville, Louisville, Ky. Corneal electrophysiology.
- NB-04342-2 Hurvich, L. M., U. Pennsylvania, Philadelphia. Visual processes—Adaptive and temporal properties.
- NB-04243-1 Waitzman, M. B., Med. Sch., Emory U., Atlanta, Ga. Metabolic systems in aqueous humor dynamics.
- NB-04281-1 Stone, W., Jr., Mass. Eye, Ear Inf., Boston. Surgical polymers—Standardization, purification, synthesis.
- NB-04288-2 Kinoshita, J. H., Sch. Med., Harvard U., Boston. Research career development award—Experimental Cataracts.
- NB-04310-1 Aronson, S. B., Univ. California Med. Cr., San Francisco. Study of ocular immune reactions.
- NB-04318-2 Waitzman, M. B., Sch. Med., Emory U., Atlanta, Ga. The role of corticoids in aqueous humor dynamics.
- NB-04319-2 Waitzman, M. B., Sch. Med., Emory U., Atlanta, Ga. Parasympathomimetic properties of ocular extracts.
- NB-04333-1 Bulle, P. H., Georgetown U. Med. Cr., Wash., D.C. Uveal blood flow and metabolism studied in vivo.
- NB-04342-2 MacDonald, R., Sch. Med., Univ. Louisville, Louisville, Ky. Corneal electrophysiology.
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- NB-04404-1 Safir, A., Col. Med., Yeshiva U., N.Y.C. Spectral variation of retinal directional sensitivity.
- NB-04422-1 Cronly-Dillon, J. R., Oxford U., Oxford, England. Discrimination of visual shape in the goldfish.
- NB-04446-1 Maumenee, A. E., Sch. Med., Johns Hopkins Univ., Baltimore, Md. Diabetic retinopathy.
- NB-04447-1 Verhave, T., Presbyterian Med. Cr., San Francisco, Cal. An investigation of nonvisual ocular feedback.
- NB-04452-1 McConnell, D. G., Ohio State U. Res. Fdn., Columbus. Chemical studies of stimulated retina.
- NB-04486-1 Morris, A., Presbyterian Med. Cr., Inst. Med. Sci., San Francisco, Cal. Brightness discrimination and intraocular pressure.
- NB-04501-1 Irvine, A. R., Jr., Estelle Doheny Eye Fdn., Los Angeles, Cal. Effect of blood and pressure on cultured ocular tissues.
- NB-04533-2 Bortoff, A., Sch. Med., State U. New York, Syracuse, N.Y. Electrical activity of the retina.
- NB-04539-1 Binder, R. F., Sch. Med., Western Reserve U., Cleveland, Ohio. Intraocular hemolysis.
- NB-04540-2 McLaughlin, S. C., Jr., Inst. Psychol. Res., Tufts Univ., Medford, Mass. Visual perception in strabismus.
- NB-04547-1 Jampel, R. S., Columbia Univ., N. Y. C. Eye movements from brain stimulation.
- NB-4578-1 Krüger, L., Sch. Med., U. California, Los Angeles. Visual projection in submammalian vertebrates.
- NB-04579-1 Koella, W. P., Worcester Fdn. Exptl. Biology, Shrewsbury, Mass. Visual and vestibular projection to cerebellum.
- NB-04625-1 Dayton, G., Jr., Sch. Med., U. California, Los Angeles. Developmental study of coordinated eye movements in the human infant.
- NB-04630-1 Hamasaki, D. I., Sch. Med., U. Miami, Coral Gables. Effect of ions and drugs on the electroretinogram.
- NB-04633-1 Lovell, W. V., Route Two, Box 18, Sanford, Florida. Modified Lovell eye magnet for nonmagnetic metals.
- NB-04668-1 Glocklin, V. C., Univ. Chicago, Ill. Metabolism of retinal pigment cell epithelium.
- NB-04669-1 Collins, C. C., Presbyterian Med. Cr., Eye Research Inst., San Francisco, Cal. Hydrostatic study with ocular endoradiosonde.
- NB-04681-1 Burian, H. M., Iowa State Med. Cr., Iowa City. Symposium on the A-wave in the human ERG.
- NB-04886-1 Onley, J. W., Col. Arts. Sci., U. Rochester, N.Y. Psychophysical studies of visual sensitivity.
- NB-04695-1 Sears, M. L., Sch. Med., Yale U., New Haven, Conn. Retinal vascular metabolism.

NB-04717-1 Riesen, A. H., Univ. California, Riverside. Vision in special environments—Developmental effects.

[Enclosure 2]

RESEARCH SUPPORT OF VISION AND VISUAL DISORDERS

- AI-944 Eichenwald, H. F., College of Medicine., Cornell Univ., N.Y.C. The toxoplasma parasite and toxoplasmosis.
- AI-1741 Siim, J. C., Sch. Med., State Serum Inst., Copenhagen, Denmark. Studies on acquired toxoplasmosis.
- AI-2070 Kessel, J. F., E. Doheny Eye Fdn., Los Angeles, Cal. Possible relation of toxoplasma and amoebae to uveitis.
- AI-2551 Fledman, H. A., Sch. Med., Res. Fdn., State Univ. New York, Albany, N.Y. Toxoplasma immunity.
- AI-3023 Top, F. H., State Univ. Iowa, Iowa City, Iowa. Epidemiology of toxoplasmosis.
- AI-3799 Dienst, R. B., Medical College of Georgia, Augusta, Ga. Epidemiology of toxoplasmosis.
- AI-4717 Remington, J. S., Palo Alto Med. Res. Fdn., Palo Alto, Calif. Toxoplasmosis—Nature of infection and immune response.
- AM-1165 Van Eck, W. F., Sch. Med., Yale Univ., New Haven, Conn. Clinical and experimental studies on diabetic retinopathy.
- AM-4803 Guest, G. M., Children's Hosp., Cincinnati, Ohio. Metabolic studies in diabetic children.
- AM-4996 Davis, M. D., Sch. Med., Univ. of Wisconsin, Madison, Wis. Role of endocrine dysfunction in diabetic retinopathy.
- AM-6135 Keen, H., Guy's Hosp., London, England. Retinal metabolism and diabetes mellitus.
- AM-6490 Toussaint, D., Med. Queen Elizabeth Fdn., Brussels, Belgium. Human and experimental (cats) diabetic retinopathy.
- AM-6735 Candau, M. G., WHO, Geneva, Switzerland. Hypervitaminosis A—Xerophthalmia and keratomalacia.
- CA-4346 Hyman, G. A., Col. Phys. & Surg., Cornell Univ., N.Y.C. Combined X-ray and chemical therapy of retinoblastoma.
- MH-2528 Engel, E., Upstate Med. Cr., State Univ., New York, Syracuse, N.Y. Adaptation in artificially aniseikonia and its after effects.
- MH-6362 Keeler, M. H., Sch. Med., Univ. of North Carolina, Chapel Hill, N.C. Study of retinal phenomena and psychotomimetic drugs.
- MH-6621 Lit, A., Grad. Sch., So. Illinois Univ., Carbondale, Ill. Effects of illumination on binocular space perception.
- MH-6744 Kandel, G. L., Rensselaer Inst., Troy, N.Y. Factors influencing binocular integration.
- MH-7179 Brozek, J., Grad. Sch., Lehigh Univ., Bethlehem, Pa. Disruptive effects of flickering illumination.
- MH-7413 Misiak, H., Grad. Sch., Fordham Univ., N.Y.C. The effect of meprobamate on critical flicker frequency.
- MH-7743 Walsh, J. F., Grad. Sch., Fordham Univ., N.Y.C. Diurnal Variation of CFF thresholds.
- NB-434 Lowry, O. H. Washington Univer., St. Louis, Mo. Quantitative histochemistry of the retina.
- NB-492 Smelser, G. K., Col. Phys. Surg., Columbia Univ., N.Y.C. Functional development of the eye.
- NB-604 Jawetz E., Sch. Med., Univ. California, San Francisco, Cal. Studies of viral keratoconjunctivitis.
- NB-964 Scott, L. V., Sch. Med., Univ. Oklahoma, Oklahoma City, Okla. Experimental herpes simplex infections in the fetus.
- NB-1202 Smelser, G. K., Sch. Med., Columbia Univ., N.Y.C. Electron microscopy of the eye.
- NB-1330 Fernandez, C., Univ. Chicago, Ill. Vestibular system—Clinical and experimental.
- NB-1341 Harman, P. J., Seton Hall Col. Med., Dent., Jersey City, N. J. Optic system in cat and monkey.
- NB-1900 Spector, A., Mass. Eye, Ear Infirmary, Boston, Mass. Lens proteins and glutathione.

- NB-1911 Wortman, R., Sch. Med., Washington Univ., St. Louis, Mo. Mucopolysaccharides of the eye.
- NB-1940 Sidman, R. L., Sch. Med., Harvard Univ., Boston, Mass. Histochemistry of normal and diseased retinas.
- NB-1962 Bardawill, W. A., St. Margaret's Hospital, Boston, Mass. Temporal arteritis—A blinding disease.
- NB-2010 Bernstein, M. H., Sch. Med., Wayne State Univ., Detroit, Mich. Electron Microscopy of retina and supporting tissues.
- NB-2018 Nelken, D., Med. Sch., Hebrew Univ., Jerusalem, Israel Immunological aspects of corneal transplantation.
- NB-2108 Eaton, H. D., Col. Agr., Univ. Connecticut, Storrs, Conn. Hypo- and hypervitaminosis A.
- NB-2298 Kornblueth, W., Sch. Med., Hebrew Univ., Jerusalem, Israel. Carbohydrate metabolism of lens of experimental animals.
- NB-2333 Marg, E., Univ. California, Berkeley, Cal. Visual system studies with new electronic methods.
- NB-2507 Parsons, O. A., Univ. Oklahoma Med. Cr., Okla. City. Flicker-fusion visual fields in the brain damaged.
- NB-2546 Sery, T. W., Wills Eye Hospital, Phila., Penna. Experimental uveitis in the rabbit.
- NB-2769 Futterman, S., Mass. Eye & Ear Inf., Boston, Mass. Retinal Metabolism.
- NB-2824 Bernkopf, H., Hebrew University-Hadassah Med. Sch., Jerusalem, Israel Immunological and serological studies on trachoma virus.
- NB-2856 Howe, A. F., Retina Fdn., Inst. Biol., Med. Sci., Boston, Mass. Chemical & immunochemical studies of vitreous body.
- NB-2889 Sjostrand, F. S., Col. Ltrs., Univ. California, Los Angeles, Cal. Development and organization of visual pathways.
- NB-2913 Stone, W., Jr., Mass. Eye & Ear Infirmary, Boston, Mass. Chemistry of collagen in transparency and opacity.
- NB-3010 McLean, J. M., Col. Med., Cornell Univ, N.Y.C. Blood osmolality and intraocular pressure.
- NB-3111 Dukes, C. D., Sch. Med., Baylor Univ., Houston, Texas. Local antibody formation and experimental uveitis.
- NB-3144 Grayston, J. T., Sch. Med., Univ. Washington, Seattle, Wash. Prevention of trachoma.
- NB-3225 Bickford, R. G., Mayo Assn., Rochester, Minn. Electro cerebral response to visual pattern.
- NB-3245 Landman, J., McGill Univ., Montreal, Canada. Formation and localization of lens antigens in man.
- NB-3289 Bender, M. B., Mount Sinai Hospital, New York City, N.Y. Central determinants of retinal excitability in man.
- NB-3435 Bennett, D. R., Sch. Med., Univ. Michigan, Ann Arbor, Mich. Action of adrenergic drugs on intracular pressure.
- NB-3455 Porterfield, J. F., Sch. Med., Univ. Missouri, Columbia, Mo. Clinico-pathologic study of autopsy eyes.
- NB-3465 Guyton, J. S., Henry Ford Hosp., Detroit, Mich. Hypersensitivity in clouding of rabbit corneal grafts.
- NB-3483 Kupfer, C., Harvard Med., Mass. Eye, Ear Inf., Boston, Mass. Projection of human retina on lateral geniculate body.
- NB-3489 Schepens, C. L., Retina Fdn., Boston, Mass. Connective tissue diseases in the eye.
- NB-3528 Schwartz, A. S., Barrow Neurological Inst., Phoenix, Ariz. Neural mechanisms in flicker perception.

- NB-3636 Armaly, M. F., Sch. Med., State Univ., Iowa, Iowa City, Iowa. Pilot study international collaboration on glaucoma.
- NB-3637 Barany, E. H., Sch. Med., Uppsala Univ., Uppsala, Sweden. Comparative study of glaucoma in monkey species.
- NB-3693 Gay, A. J., Sch. Med., Washington Univ., St. Louis, Mo. Projection from minute retinal lesions to lateral geniculate nucleus.
- NB-3740 Talman, E. L., Med. Res. Fdn., Oregon, Portland, Oreg. Galactose and lens metabolism.
- NB-3834 Haddad, H. M., Sch. Med., Washington Univ., St. Louis, Mo. Sialic acids in the eye.
- NB-3841 Barber, A. N., Sch. Med., Louisiana State Univ., Baton Rouge, La. A study of genetic factors for blindness.
- NB-3888 Misiak, H., Grad. Sch., Fordham Univ., N.Y.C. Standardization of the critical flicker frequency test.
- NB-3943 Lennox-Buchthal, M. A., Sch. Med., Univ. Copenhagen, Denmark. Central nervous mechanisms in color vision.
- NB-3960 O'Connor, G. R., Sch. Med., Univ. California, Berkeley, Calif. The separation and analysis of toxoplasma antigens.
- NB-4059 Goodner, E. K., Univ. California Med. Sch., Berkeley, Calif. Experimental lens-induced uveitis in rabbits.
- NB-4116 Feldman, G. L., Col. Med., Baylor Univ., Houston, Tex. Chemically induced cataracts in the chick embryo.
- NB-4145 Rosenberg, B., Col. Sci., Arts, Michigan State Univ., East Lansing, Mich. Electronic charge transport in visual systems.
- NB-4277 Feldman, G. L., Sch. Med., Baylor Univ., Houston, Tex. The lipids in experimentally induced cataracts.
- NB-4282 Woodcock, R. W., Colorado State College, Greeley, Colo. Development of an electronic brailling system.
- NB-4286 Braley, A. E., Sch. Med., State Univ., Iowa, Iowa City, Iowa. Travel fund for International Ophthalmology Congress.
- NB-4358 Rothstein, H., Col. Arts. Sci., Univ. Vermont, Burlington, Vt. In vivo & in vitro studies of cell division & amino acid incorporation in the ocular lens.
- NB-4393 Massopust, L. C., Psychiatric Res. Fdn., Cleveland, Ohio. Comparisons of the retina and ERG in primates.
- NB-4521 Woodburne, L., Grad. Sch., Univ. Washington, Seattle, Wash. Visual acuity, visual discrimination, and visual cortex of squirrel monkey.
- NB-4530 Gunter, R., Sch. Psychol., San Fernando Valley State C., Northridge, Calif. The nature of primate color vision.
- NB-4576 Bender, M. B., Mount Sinai Hospital, N.Y.C. Effects of arousal on human oculomotor function.
- NB-4590 Klein, D., Inst. de Genetique medicale, Geneva, Switzerland. Genetic studies of tapetoretinal degenerations.
- NB-4591 Kern, H. L., Albert Einstein Col. Md., Yeshiva Univ., N.Y.C. Muco-proteins of the cornea.
- NB-4684 Cleasby, G. W., Presbyterian Med. Cr., San Francisco, Calif. Experimental modification of corneal graft reactions.
- NB-5021 Chick, E. W., West Virginia Univ., Morgantown, W. Va. Pathogenesis of mycotic ulcerative keratitis.
- RF-0025 Korc, I., Sch. Med., Universidad de la Republica, Montevideo, Uruguay. Biochemical studies on normal and cataractous lenses.

Bureau of State Services projects in vision and loss of vision
COMMUNITY HEALTH PROGRAM

Project No.	Period	Grantee	Project director	Title	Fiscal Year	Amount
CH 40-46 A-64	Apr. 1, 1964- Mar. 31, 1965	Pennsylvania State College of Optometry.	William G. Walton, Jr., O.D.	Appraisal of incidence of refractive errors and increased ocular tension in aged population with determination of approximate time involved.	1964	\$11,691
NEUROLOGICAL AND SENSORY DISEASES PROGRAM						
N0102A63	July 1, 1963- June 30, 1966	Department of Ophthalmology, University of Alabama Medical Center.	Elmar Lawaczek, M.D.	Community Glaucoma Evaluation Service.	1963	15,452
N1001C64	Aug. 1, 1962- July 31, 1965	Florida State Board of Health	Nathan J. Schneider, Ph.D.	Laboratory Diagnosis of Chronic Eye Disease Due to Toxoplasmosis.	1963	10,306
N11702B64	Sept. 1, 1963- Aug. 31, 1968	Iowa State Department of Health	Mansour F. Armaly, M.D.	Population Study of Glaucoma Tests	1963	8,974
N2204A64	Jan. 1, 1964- Dec. 31, 1966	Johns Hopkins University School of Medicine.	Frank B. Walsh, M.D.	Clinical Electroretinography	1963	7,800
N2301B64	Dec. 1, 1962- Feb. 28, 1966	Brookline Health Department	Leon J. Taubenhaus, M.D.	Visual Screening of 3- Through 5-Year-Old Children.	1963	6,600
N2402B63	Jan. 1, 1962- Dec. 31, 1965	Michigan Department of Health	John A. Cowan, M.D.	Metropolitan Detroit Glaucoma Screening Project.	1963	7,400
N3404A63	Sept. 1, 1963- Aug. 31, 1967	The Research Foundation, State University of New York.	William U. Delaney, M.D.	Establishment of Eye Pathology Laboratory.	1963	10,840
N3408A64	May 1, 1964- June 30, 1967	Manhattan Eye, Ear, and Throat Hospital.	Brian J. Curtiss, M.D.	Expansion of Services of a Myopia Clinic.	1963	16,800
N3901A62	Sept. 1, 1962- Dec. 31, 1964	Oregon State Board of Health	Julia C. Dickinson, M.D.	A Study of the Eye Problems of the Aged in Oregon.	1963	4,108
N4602B63	Nov. 1, 1962- Oct. 31, 1965	Baylor University College of Medicine.	Mary C. Fletcher, M.D.	Orthoptic-Preoptic Hospital Unit	1963	1,831
N5201A63	July 1, 1963- Dec. 31, 1965	West Virginia University	Robert R. Trotter, M.D.	Continuing Glaucoma Detection Program at West Virginia University.	1963	1,900
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NEUROLOGICAL AND SENSORY DISEASE SERVICE PROGRAM

VISION STUDIES

Contracts

Brooklyn Jewish Hospital, 1958-59: Glaucoma detection in a general clinic.
 Washington University, St. Louis, Mo., 1959-60: A study to determine if the occurrence of glaucoma among blood relatives of patients with glaucoma was greater than among normal population group.

National Analysts, Philadelphia, Pa., 1961-62: A study of cataract patients to determine motivations in submitting to corrective surgery.

Johns Hopkins University, 1962: A study to test the effectiveness of the tonofilm as a barrier to bacteria and virus.

University of North Carolina, 1962-63: Followup experience of positive glaucoma screenings in North Carolina.

Michigan State Department of Health, 1962-63: A study of glaucoma case finding among relatives of persons known to be blind from chronic glaucoma.

American Bio-Chemical Co., Baltimore, Md., 1961-62: Develop and produce disposable sterile tonometer membranes.

Richard Rush Studio, Inc., Chicago, Ill., 1963: Develop and deliver plastic models of the human head to be used in the teaching of tonometry.

Marquette University School of Medicine, Wisconsin, 1962 to present: Plan, conduct, and analyze the results of a glaucoma screening study.

University of Tennessee College of Medicine, 1961 to present: Conduct a study of screening methods employed in glaucoma detection.

Howard University, Washington, D.C., 1964 to present: A study on the relationship between diabetes and glaucoma.

Permanente Medical Group, Oakland, Calif., 1962-64: A study of the validity of the MacKay-Marg tonometer as a screening instrument for early detection of chronic simple glaucoma.

Johns Hopkins University, University of California, Washington University, St. Louis, 1957-59: Glaucoma test evaluation for collaborative study.

Louisiana State University School of Medicine, 1962 to present: Conduct a study of natural history of ocular changes.

Brookline Health Department, Brookline, Mass., 1962 to present: Vision testing and correction for nursing home residents.

Agreements

Freedmen's Hospital, Washington, D.C., 1962-64: Glaucoma case-finding study on the association between glaucoma and other systemic diseases.

Freedmen's Hospital, Washington, D.C., 1962-64: Study of relationship between glaucoma and diabetes.

Staff study

Philadelphia, Pa., 1957: Glaucoma case-finding followup study.

MR. ROBERTS. This will conclude the hearings on H.R. 8546, and we thank the witnesses who have appeared.

I would like to have the committee's attention in executive session for just a few minutes.

(The following material was submitted for inclusion in the record:)

HOUSE OF REPRESENTATIVES,
 Washington, D.C., May 26, 1964.

HON. KENNETH A. ROBERTS,
 Chairman, House Subcommittee on Public Health and Safety,
 Washington, D.C.

DEAR MR. CHAIRMAN: My bill H.R. 8705 is companion to H.R. 8546 and other such legislation designed to amend title VII of the Public Health Service Act so as to extend to qualified schools of optometry and students of optometry those provisions thereof relating to student loan programs.

With an interest in conserving the time of your subcommittee in its deliberations, I would appreciate your submitting to the record of hearings this letter as evidence of my support of this legislation, this in lieu of my appearance before your subcommittee.

The highly technical age in which we live requires good vision, both for our safety and for maximum benefits from the products of technology that are all

about us. It is indeed unfortunate that optometry was not included in the Health Professions Education Assistance Act of 1963, the authority (Public Law 88-129) which provided student loans to individuals studying medicine, dentistry, and osteopathy. The legislation which is the subject of this subcommittee's deliberations will move forward to correct this omission.

There is a very definite need for this type of legislation, for it is estimated that today there are only about 16,000 optometrists in the United States. This number falls far short of satisfying our needs, for, as reported by Dr. W. Judd Chapman, president of the American Optometric Association, there is this need for vision services in the general population:

An estimated 100 million people in the United States, as many as 58 percent of the population, require some form of vision care; that is, correction by glasses, visual training, or other types of treatment.

About 9,800,000 children need vision care, and it is estimated that a large number of these children should be wearing glasses.

About 350,000 persons are legally blind. Some 75 percent of this number can be rehabilitated to function as normally sighted persons.

Some 1,500,000 persons are blind in one eye.

Approval of the legislation that is before this subcommittee would work to broaden the base of these optometric services, doing this by providing inducements for students to enter into this highly specialized field. Because of this, I respectfully urge that this subcommittee approve the object of H.R. 8705 and other similar legislation.

Mr. Chairman, I deeply appreciate having the opportunity to present this letter of support to the record of hearings on this legislation relating to qualified schools of optometry and students of optometry.

Respectfully yours,

CLIFFORD G. McINTIRE,
Member of Congress.

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 26, 1964.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Public Health and Safety, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: I take this means of expressing my support for H.R. 8546, your bill to amend the Public Health Service Act so as to extend to qualified schools of optometry and students of optometry those provisions thereof relating to student loan programs.

I also submit for inclusion in the record of the hearings now being held on this legislation a supporting telegram which I have recently received from E. E. Bach, O.D., president of the Alaska Optometric Association.

Thanking you, I am,

Sincerely,

RALPH J. RIVERS,
Member of Congress.

ANCHORAGE, ALASKA, *May 24, 1964.*

HON. R. J. RIVERS,
House Office Building,
Washington, D.C.:

Due to national shortage of optometry graduates, all Alaska Optometric Association members request your support in approval of H.R. 8546. Financial requirements of optometry students are the same as for equivalent professions of dentistry and medicine due to academic training duration.

Please include this statement in record of hearing taking place May 26, before House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chaired by Congressman Kenneth Roberts, of Alabama.

E. E. BACH, O.D.,
President, Alaska Optometric Association.

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 26, 1964.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Public Health and Safety, House Interstate and Foreign Commerce Committee, Washington, D.C.

DEAR MR. CHAIRMAN: I have today received correspondence from a constituent, Dr. Richard E. Revilla, president of the Vermont Optometric Association, Inc.

Dr. Revilla has asked that his support of H.R. 8546 be made a part of the official records of the hearings taking place before the Subcommittee on Public Health and Safety. In his letter he stated:

"I feel that there is a definite need for more optometrists and that this may very well be the stimulant needed to induce more people to enter into optometry."

Sincerely yours,

ROBERT T. STAFFORD,
Member of Congress.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON JUDICIARY,
Washington, D.C., May 25, 1964.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Public Health and Safety, House Interstate and Foreign Commerce Committee, Washington, D.C.

DEAR KENNETH: Enclosed is a telegram which I have received from Dr. B. W. Madden, president, Kentucky Optometric Association, in support of Federal loans to optometry students as provided for in H.R. 8546.

I want to express my interest in this provision for optometry students and every consideration shown the request of Dr. Madden will be appreciated by me. I will be grateful if his communication to me is made a part of the official record of hearings in connection with H.R. 8546.

With best wishes, I am,

Sincerely yours,

FRANK CHELF,
Member of Congress.

FRANKFORT, KY., May 22, 1964.

Representative FRANK CHELF,
House of Representatives,
Washington, D.C.:

Request your support of Federal loans to optometry students as provided in H.R. 8546.

Thirty-eight counties in Kentucky do not have adequate visual care and new optometrists are not replacing those that die or retire.

Please include this statement in the record of hearings that will take place May 26 before House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chaired by Congressman Kenneth Roberts, of Alabama.

Thank you.

B. W. MADDEN, O.D.,
President, Kentucky Optometric Association.

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 21, 1964.

HON. KENNETH ROBERTS,
Member of Congress,
U.S. House of Representatives,
Washington, D.C.

DEAR KENNETH: I understand that you are scheduling hearings for next Tuesday on H.R. 8546, which would amend the Health Professions Education Assistance Act of 1963 to include students in the field of optometry under the provisions

of the act. The purpose of this letter is to endorse this bill and to urge that the committee take appropriate action to approve this very worthwhile legislation.

With best wishes, I remain,
Yours sincerely,

GEORGE HUDDLESTON, Jr.

HOUSE OF REPRESENTATIVES,
Washington, D.C., June 5, 1964.

HON. KENNETH ROBERTS,
Chairman, Subcommittee on Public Health and Safety.

DEAR CONGRESSMAN ROBERTS: On May 26 you conducted hearings on H.R. 8546. I would like to inform you and the committee of my emphatic support for this legislation. I feel that it would be in the best public interest as well as to optometry.

The State of Idaho is in need of optometrists, as there are not now an educated number to fulfill demands.

I would appreciate your taking this note to the committee.

Best personal regards,

RALPH HARDING,
Member of Congress.

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 22, 1964.

HON. KENNETH ROBERTS,
Chairman, Public Health and Safety Subcommittee, House Interstate and Foreign Commerce Committee, Washington, D.C.

DEAR COLLEAGUE: The president of the Iowa Optometric Association, Dr. C. M. Long, has asked that I advise you that his association endorses H.R. 8546.

He requests that his association's endorsement of the legislation be included in the record of hearings on the legislation.

Sincerely,

H. R. GROSS.

BATTLE CREEK, MICH., May 21, 1964.

HON. AUGUST E. JOHANSEN,
*House of Representatives,
Washington, D.C.:*

DEAR HONORABLE JOHANSEN: Please give your serious and favorable consideration to H.R. 8546. We are barely graduating enough optometrists to supply replacements for those retiring. Population increase demands more than we can supply. H.R. 8546 would provide assistance for optometry students. Please request this statement be included in hearing May 26 before House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chaired by Congressman Kenneth Roberts of Alabama. Thanks.

RALPH M. HOWARD, O.D.,
President, Michigan Optometric Association.

AUSTIN, TEX., May 22, 1964.

HON. KENNETH A. ROBERTS,
*New House Office Building,
Washington, D.C.:*

May I express the vital concern of the Texas optometrist in H.R. 8546, to be considered Tuesday May 26. An amendment to include students and colleges of optometry is respectfully urged.

DR. ROBERT E. DAY,
President of the Texas Optometric Association.

WOODWARD, OKLA., May 22, 1964.

Representative KENNETH A. ROBERTS,
House Office Building,
Washington, D.C.:

Our sincere appreciation to you for introducing H.R. 8546 on loans to optometry students.

Dr. MAX QUILLIN,
President, Oklahoma Optometric Association.

SACRAMENTO, CALIF., May 22, 1964.

HON. KENNETH ROBERTS,
Chairman, Subcommittee on Public Health and Safety, House Interstate and
Foreign Commerce Committee, House Office Building, Washington, D.C.:

The California Optometric Association, representing 2,000 practicing optometrists in this State vitally interested in H.R. 8546, H.R. 8560 by Congressman Harlan Hagen and other identical bills before your Subcommittee on Public Health and Safety scheduled for hearings next week. These bills provide for loans to students of optometry under the student loan program. Our profession and this associated feel that such legislation is just and equitable.

BERNARD R. GARRETT, O.D.,
Chairman, Legislative Committee, California Optometric Association.
G. BRADLEY BARNES, O.D.,
President, California Optometric Association.

MARSHALLTOWN, IOWA, May 22, 1964.

HON. BEN F. JENSEN,
House Office Building, Washington, D.C.:

Iowa Optometric Association endorses H.R. 8546 relative to Federal loans for optometric students. Request above statement be included in record of hearings taking place May 26, 1964, before House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chaired by Congressman Kenneth Roberts of Alabama.

C. M. LONG,
President, Iowa Optometric Association.

FRANKFORT, KY., May 26, 1964.

HON. KENNETH ROBERTS,
Subcommittee on Health and Public Safety, House Interstate and Foreign
Commerce Committee, Washington, D.C.:

The Kentucky Optometric Association strongly supports H.R. 8546 for Federal loans to optometry students; 37 counties in Kentucky are without the services of full-time eye care practitioners and new men are not filling the ranks of those who die or retire.

More optometrists are needed in Kentucky and this law would give more students an opportunity to practice in our State.

Hoping that this statement may become part of the record of your hearings, I remain,

Respectfully yours,

Dr. GEORGE I. OLIVER,
Administrative Director, Kentucky Optometric Association.

STATE OF OHIO, DEPARTMENT OF EDUCATION,
STATE BOARD OF OPTOMETRY,
Columbus, Ohio, May 23, 1964.

HON. KENNETH ROBERTS,
Chairman, Subcommittee on Health and Public Safety,
House Interstate and Foreign Commerce Committee,
Washington, D.C.

DEAR SIR: I want to urge passage of H.R. 8546 to allocate Federal funds to optometry students.

We are examining high caliber young men and women and licensing them. We should have more to meet the present needs of Ohioans. The trend of Ohio population is such that even increased numbers will be needed in the near future.

This will be a definite help to students who can in turn render their services to the people of Ohio.

Very truly yours,

J. T. KEITH, *President.*

FLORIDA OPTOMETRIC ASSOCIATION, INC.,
Orlando, Fla., May 22, 1964.

Congressman PAUL ROGERS,
U.S. House of Representatives,
Washington, D.C.:

It has come to my attention that H.R. 8546 relating to Federal loans for optometry students will be discussed in a hearing to take place May 26 before the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety.

You are probably aware that the State of Florida felt a great need for additional optometric services and practitioners in 1961 when our legislature provided for State support of scholarships for prospective students.

There is still a tremendous shortage in Florida for in 1961 we had a ratio of 1 optometric for each 11,000 persons. This ration shouldn't be over 1 to each 7,000 if the public is to receive adequate visual care.

Efforts on your part to see that these statements are included in the record of the hearings will be greatly appreciated.

I have heard many fine comments from Dr. William Harmon and others on your accomplishments and want to wish you well in all your efforts for the good and welfare of our great State as well as the Nation.

Cordially,

PAUL M. KESSLER, O.D., *President.*

INTERNATIONAL ASSOCIATION OF BOARDS
OF EXAMINERS IN OPTOMETRY, INC.,
May 21, 1964.

Representative KENNETH A. ROBERTS,
House of Representatives,
Washington, D.C.

DEAR REPRESENTATIVE ROBERTS: The International Association of Boards of Examiners would appreciate your support of the amendment to the Federal assistance to students loans (H.R. 8546).

A survey of eye care throughout the United States has shown a great number of areas in which eye care is not available.

In order to meet this shortage of optometrists this association has undertaken a recruitment program of great magnitude.

However, there are many students who are unable to continue their education without assistance. For this reason, we hope you will act favorably on this bill.

Sincerely yours,

ALBERT H. RODRIGUEZ, O.D., D.O.S.,
President, IAB.

SOUTHERN COUNCIL OF OPTOMETRISTS,
Atlanta, Ga., May 21, 1964.

HON. KENNETH ROBERTS,
*Chairman, Subcommittee on Health and Public Safety, Interstate and Foreign
 Commerce Committee, House Office Building, Washington, D.C.*

DEAR CONGRESSMAN ROBERTS: On behalf of the some 2,000 members of the Southern Council of Optometrists in 12 Southern States, I am writing to respectfully request the earnest consideration and approval by your subcommittee of H.R. 8540, relating to Federal loans for optometry students.

Recognizing that the population explosion and dynamic industrial growth of the South required our special action, several years ago we launched a region-wide movement to provide voluntary scholarships and to enlist State aid to assure that future citizens would be provided with adequate care.

We are pleased to report that many scholarships are now being offered both by optometric organizations and that five States—Florida, Georgia, Kentucky, South Carolina, and Texas—have met this challenge in a way through providing limited tax funds to assure an uninterrupted flow of practitioners in the future. There are indications that some others will follow suit. However, the need is still far outstripping the means of solving it.

The cost of 4 years of professional training in optometry, like other professions, is out of the reach of many otherwise capable young men and women. In other professions this problem has been met with Government loans and tax aid, as well as assistance from industry. We feel that people are entitled to first-rate vision care the same as any other type of health service.

We estimate that 350 more optometrists, over and above those for replacements due to deaths and retirements, will be needed by the States of our area than will be provided to meet increasing population between now and 1970. The cost of an optometric education and the inability to compete with other professions due to their Government-aid plans and scholarships handicaps us in attempting to meet this need.

Studies have shown that there is a very definite relationship between the incidence of eye disease and the number of eye care practitioners in an area. Since the South is at the bottom in the Nation in the number of practitioners, it is, therefore, not surprising that it is likewise the area of the highest incidence of eye disease.

Likewise, we would like to respectfully call the attention of the distinguished members of your subcommittee to the fact that optometry is basically a profession serving the eye care needs of millions of rural people in the South and the Nation. We provide the only vision care services available in a majority of the counties of the South. Therefore, we feel that we speak in the interest of the rural people, particularly, when we respectfully request your committee to approve H.R. 8540.

Any consideration you and the committee see fit to give this matter will be appreciated. We are pleased that your outstanding committee is holding hearings on this matter. We congratulate you upon your spirit of public service and concern for the well-being of the public.

We would like to request that this letter be made a part of the record of the hearing which we understand will be held on May 26 by the Subcommittee on Public Health and Safety.

Sincerely yours,

JAMES F. LOOMIS, O.D., *President.*

THE ALABAMA OPTOMETRIC ASSOCIATION,
May 21, 1964.

Re H.R. 8546.

HON. KENNETH A. ROBERTS,
*Subcommittee on Health of the House Committee on Interstate and Foreign
 Commerce, House of Representatives, Washington, D.C.*

DEAR KENNETH: I want to take this opportunity and means to again thank you for introducing this amendment to Public Law 88-129 so that the loan provision of the Health Professions Education Assistance Act of 1963 might be available to optometry students.

As you know, we have no optometry college in Alabama and our State government provides no support whatsoever to our students of optometry who must go into other States for their education. Net result of this is the fact that some 17 Alabama counties do not have the full-time services of an optometrist. This dire shortage of optometrists is on the increase as far as Alabama is concerned and we see little hope for improvement for the future except through this and other worthy legislation.

Again, thank you for all your past efforts on behalf of optometry. Thank you for calling the May 26 subcommittee hearing on this bill. May I ask that this letter be included in the records of this hearing?

Yours most sincerely,

FRANKLIN C. MINTON, O.D., *President.*

OREGON OPTOMETRIC ASSOCIATION,
Portland, Ore., May 21, 1964.

Hon. KENNETH A. ROBERTS,
*Chairman, House Interstate and Foreign Commerce Committee,
Subcommittee on Health and Public Safety,
Washington, D.C.*

DEAR CHAIRMAN ROBERTS: The 161-member Oregon Optometric Association respectfully commends passage of H.R. 8546, relating to Federal loans for optometry students, and asks that this statement be included in the record of hearings you will conduct before the House of Representatives Interstate and Foreign Commerce Committee on May 26.

Considering the mounting program to encourage young people to enter healing arts professions, through loans and grants to them in their student years, it seems proper that intensified assistance should be given to optometric undergraduates.

Overall, the Nation had 283 fewer optometrists on March 1 of this year than on March 1, 1962. We suffered markedly in the Northwest—Oregon's optometric population dropped from 335 to 331 in these 2 years, Idaho's from 96 to 95, Montana's from 98 to 91.

In Oregon, we have launched an intensive recruiting drive to attract young people to the Pacific University College of Optometry in Forest Grove, one of only 10 optometric colleges in the United States. Our men began last Friday a drive to raise \$300,000 by private subscription, to match funds which will be sought under H.R. 12 for the construction of an additional 22,500 square feet of classroom space at Pacific University, part of a \$1,100,000 overall expansion plan on its campus.

But our resources as individuals cannot go past a certain point. We cannot create adequate loan funds to students from our modest membership dues treasury.

There are no optometrists in such cities as Barnes, population 5,076; Empire, 3,781; Four Corners, 4,743, and similar towns with populations between 4,000 and 5,000, whether incorporated or not.

Ours is a fairly large and rambling State. In some rather isolated counties, such as Harney, there is 1 optometrist for 6,744 people. But in the event of his illness or death the other nearest towns are about 150 miles away. In Lake County, to serve 7,158 people, there is only 1 optometrist. In Malheur County, 22,764 people, there are only 2 optometrists, both in Ontario, and none in Vale or Nyssa, the county's other 2 major cities.

There are no optometrists at all in Gilliam County, population 3,069; Sherman County, population 2,446; and only 1 optometrist in Wallowa County, population 7,102.

Pacific University is also strengthening its curriculums and faculty, to accommodate 16 new students a year by 1967 and to launch a 6-year academic program by 1970. That expansion will be mockery without students to take advantage of it, and the public health could be seriously impaired due to a lack of vision-care practitioners.

As a small but hard-working State in the Union, we commend to you the passage of H.R. 8546.

Sincerely,

TED HALLOCK,
Administrative Director.

TEXAS STATE BOARD OF EXAMINERS IN OPTOMETRY,
Austin, Tex., May 21, 1964.

HON. KENNETH A. ROBERTS,
*Chairman, Subcommittee on Health and Public Safety,
 House Office Building, Washington, D.C.*

DEAR CONGRESSMAN ROBERTS: We understand that H.R. 8546 will be before your committee for public hearings right away. We hope that you will support an amendment to include optometry students in any loan provisions of the bill. The need for encouraging young people to go into the profession of optometry is as great as in any of the health care professions.

We are sure that you understand this and trust that you will give this amendment your support.

Sincerely,

IRA E. WOODS, O.D., *President.*

IDAHO OPTOMETRIC ASSOCIATION,
May 22, 1964.

MR. COMPTON WHITE,
*U.S. Representative,
 House of Representatives, Washington, D.C.*

DEAR CONGRESSMAN WHITE: In behalf of the Idaho Optometric Association I sincerely urge you to personally support and use your influence in the support of H.R. 8546 relating to Federal loans for optometry students.

Respectfully I request that my following statements be included in the record of hearings scheduled for May 26 by the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chairman, Congressman Kenneth Roberts, of Alabama: "There has been only a nominal increase of the number of optometrists practicing in the State of Idaho during the past 5 years despite substantial increases in the population. Idaho needs 1 new optometrist for each 5,000 increase of population in addition to the number required for replacements of retiring practitioners, if the vision of the Idaho residents is to be adequately cared for."

Your truly,

C. P. HIBBARD, O.D., *President.*

IDAHO OPTOMETRIC ASSOCIATION,
May 21, 1964.

HON. COMPTON WHITE,
*House of Representatives Office Building,
 Washington, D.C.*

DEAR CONGRESSMAN: I feel that it would be to optometry's and the public's interest if you can support and include an endorsement in record of the hearings to be held May 26 on H.R. 8546.

The hearing is being held by the Foreign Commerce's Subcommittee on Health and relates to Federal loans to optometric students. Congressman Kenneth Roberts of Alabama is the chairman of this committee.

Idaho has less than 100 practicing optometrists; not adequate to fulfill future demands of a growing population. Thank you for past courtesies and the consideration you may extend in furthering the bill mentioned.

Sincerely,

PETER G. SCHROECK, O.D., *Secretary-Treasurer.*

VIRGINIA OPTOMETRIC ASSOCIATION,
Richmond, Va., May 21, 1964.

HON. J. VAUGHAN GARY,
*House of Representatives,
 Washington, D.C.*

DEAR MR. GARY: This is to advise you that the Virginia Optometric Association unanimously endorses H.R. 8546 relating to Federal loans for optometry students.

There is a real shortage of optometrists in Virginia and we feel this piece of legislation would help to correct this situation and assure better eye care for residents of our State.

We urge that you use your influence in support of this measure as we strongly feel that it is in the best interests of your constituents. We also request that this expression be included in the record of the hearings taking place May 26 before the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety, chaired by Congressman Kenneth Roberts of Alabama.

Sincerely,

J. W. DOSWELL,
Administrative Director.

GEORGIA OPTOMETRIC ASSOCIATION,
Atlanta, Ga., May 23, 1964.

Congressman CHARLES WELTNER,
House Office Building, Washington, D.C.

DEAR CONGRESSMAN WELTNER: I noticed in your Washington report of May 12, that you voted for the appropriation bill H.R. 10809. I dislike seeing us turn to the Federal Government for so many things, but on the other hand, how else can it be handled?

We have a serious problem in the area of one of my favorite subjects optometry.

A major factor in school dropouts (of course, not the only reason) is poor school achievement mainly due to poor reading ability. In her book "Why Pupils Fail in Reading" Dr. Helen Robinson, of the University of Chicago, points out that over 63 percent had a visual problem. In a later book (1953) she expressed doubts that there are enough competent refractionists to handle this problem.

Then there is the ever-growing senior citizen group 95 percent of whom need good glasses.

In our State of Georgia in 1954, there were 290 registered optometrists living in Georgia and not all of them were in practice. Today, 10 years later, there are still only 290. Our optometric association is working hard to recruit more optometry students. It takes at least 5 and frequently 6 or 7 years for the education of an optometrist.

You can give us some help. The House Interstate and Foreign Commerce Committee's subcommittee, chaired by Congressman Kenneth Roberts of Alabama, is having a hearing on May 26 on H.R. 8546. This bill provides Federal loans for optometry students. Would you convey to this subcommittee that the optometrists of Georgia endorse this bill.

Sincerely,

WALLIS E. REAGIN, O.D., *President.*

WASHINGTON OPTOMETRIC ASSOCIATION,
Wenatchee, Wash., May 22, 1964.

Hon. WALT HORAN,
*House Office Building,
Washington, D.C.*

DEAR WALT: I would appreciate your support of H.R. 8546 which relates to Federal loans for optometry students.

Recent surveys indicates a definite need for more optometrists in order to properly care for the visual needs of our increasing population. Here in the State of Washington, we find a drastic shortage of optometrists. Each year the new licensees who have passed the State board of optometry exam are absorbed immediately into various practices throughout the State. If Federal loans were granted prospective students, we would definitely show an increase in the enrollment of our optometric schools.

I understand that the Honorable Kenneth Roberts of Alabama is chairman of the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Safety and the hearings concerning the subject will be held May 26, 1964. Would you be so kind to include my thoughts in the record of these hearings.

Thanking you in advance for any assistance that you can give me and optometry, I am,

Sincerely,

LOUIS J. CROLLARD, O.D., *President.*

OREGON JOURNAL,
Portland, Oreg., May 25, 1964.

Hon. KENNETH A. ROBERTS,
House Office Building,
Washington, D.C.

DEAR MR. ROBERTS: I should like to urge your Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety to give favorable consideration of H.R. 8546 in the hearings scheduled May 26.

As you undoubtedly already know, Oregon has an outstanding College of Optometry at Pacific University in Forest Grove. For years, it has produced highly skilled optometrists, not only for our State and the Pacific Northwest, but for widely scattered areas throughout the Nation. The need for additional optometrists, however, is great—and growing. Some of our State's counties have no optometrists at all and many have an insufficient number, and ours is not a unique State.

H.R. 8546 should make it possible for many who are not now able to attend optometric schools for financial reasons to do so. Because of that we hope your committee will look favorably upon H.R. 8546.

Very truly yours,

ARDEN X. PANGBORN, *Editor.*

AMERICAN MEDICAL ASSOCIATION,
Chicago, Ill., May 20, 1964.

Hon. KENNETH A. ROBERTS,
Chairman, Subcommittee on Public Health and Safety, Interstate and Foreign
Commerce Committee, House of Representatives, Washington, D. C.

DEAR CONGRESSMAN ROBERTS: On behalf of the American Medical Association, I would like to take this opportunity to comment on H.R. 8546, and similar bills, which are now pending before the Subcommittee on Public Health and Safety of the House Interstate and Foreign Commerce Committee.

As we understand it, these bills would amend the Public Health Service Act to make students at schools of optometry who are pursuing the degree of doctor of optometry, or an equivalent degree, eligible for Federal loans.

The American Medical Association has, on previous occasions, stated its objections to the Federal Government embarking upon a program of loans to medical, dental, osteopathic, and nursing students. We believe that it can only work to the ultimate disservice of our educational system and the students which it serves. We urge this subcommittee to reject these proposed extensions of student loans to optometry students.

The American Medical Association appreciates this opportunity to present its views and respectfully requests that this letter be included in the record of your hearings.

Sincerely,

F. J. L. BLASINGAME, M.D.

MARYLAND OPTOMETRIC ASSOCIATION, INC.,
May 26, 1964.

Hon. KENNETH ROBERTS,
Congressman from Alabama,
House Office Building, Washington, D.C.

DEAR CONGRESSMAN ROBERTS: In the name of the members of the Maryland Optometric Association I extend my thanks to you for introducing H.R. 8546.

Your foresight and courage in this matter will result in better vision care throughout our Nation.

My best wishes to you and your staff for continued success in Washington and your home State of Alabama.

Sincerely,

Dr. B. A. SALTYSIAK, *President.*

NEW MEXICO OPTOMETRIC ASSOCIATION,
Santa Fe., N. Mex., May 25, 1964.

Congressman THOMAS MORRIS,
Washington, D.C.:

Request your support for H.R. 8546 relating to loans to optometry students. The optometrists in New Mexico endorse this act as a tremendous aid to the students of our profession, as a shortage now exists. Respectfully request my statement be included on record of hearings May 26 before House Interstate and Foreign Commerce Committee, Subcommittee on Health and Public Safety.

L. O. BLEVINS, O.D.,
President.

OKLAHOMA STATE BOARD OF EXAMINERS IN OPTOMETRY,
Stillwater, Okla., May 21, 1964.

HON. OREN HARRIS,
*Representative from Arkansas,
 Washington, D.C.:*

I sincerely hope it will be possible for your committee to pass favorably on H.R. 8546 relating to loans for optometry students.

W. A. GRADY, O.D., *President.*

KANSAS OPTOMETRIC ASSOCIATION, INC.,
Topeka, Kans., May 21, 1964.

HON. BOB DOLE,
*House of Representatives,
 Washington, D.C.*

DEAR MR. DOLE: I would like to ask for your support on H.R. 8546 relating to Federal loans for optometry students.

We in Kansas are greatly concerned about the shortage of optometrists within our State. Kansas today has fewer practicing optometrists than 10 years ago with a larger number of people to be served. Another alarming fact is that of the optometrists practicing in Kansas, at least one-third are 60 years of age or over.

The anticipated 10-year population increase indicates the need for almost double the number of optometry graduates annually coming to Kansas.

It would be appreciated if in your support of H.R. 8546 you would have the information given in this letter be included in the record of hearings taking place on May 26 before the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety chaired by Congressman Kenneth Roberts of Alabama.

Respectfully,

E. D. NELSON, O.D., *President.*

MINOT, N. DAK., *May 21, 1964.*

Representative DON L. SHORT,
*House of Representatives,
 Washington, D.C.*

DEAR CONGRESSMAN SHORT: I am taking this opportunity to enlist your support of H.R. 8546, which concerns Federal loans to optometry students.

As president of the North Dakota Optometric Association, I feel that this legislation would be very vital to the people of North Dakota, especially in smaller communities where good vision care is seldom available. In North Dakota, optometry takes care of 70 percent of the visual problems of its people, therefore, we cannot allow a decrease in students, which would be the result if we are not allowed these loans, and would be harmful for all of us in North Dakota.

I would also like to have this statement included in the files of the bill in the House Interstate and Foreign Commerce Committee's Subcommittee on Health and Public Safety.

Thank you for your consideration on this request, I remain,

Sincerely yours,

KENNETH L. BENSON, O.D.

(Whereupon, at 11:40 a.m., the subcommittee proceeded into executive session.)



