

# The Nationwide Fight Against Blindness

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TO ATTEMPT to envisage the estimate of 334,000 blind persons in the United States, imagine a city as big as Miami, Fla., or Omaha, Nebr.—a city in which every man, woman, and child is blind. It is further estimated that more than 27,000 persons lose their sight each year and that, unless our preventive efforts can be made more effective, three-fourths of a million persons now living will become blind before they die. The cost of caring for the blind—education, braille and talking books, seeing-eye dogs, lighthouses, pensions, and other of the inadequate services we try to provide—amounts, according to the American Foundation for the Blind, to \$150 million each year.

Fortunately, there has been considerable progress in preventing blindness. Infectious causes of blindness show a great drop. When the National Society for the Prevention of Blindness was established in 1908 by Miss Louisa Lee Schuyler and Dr. F. Park Lewis, almost one-third of the children in schools

for the blind were there because of ophthalmia of the newborn. The crusading spirit that brought about legislation in every State requiring the use of prophylactic drops in the eyes of every newborn child, coupled with antibiotic treatment of those rare cases which now occur, has brought this cause of blindness to the vanishing point. Health education plus sulfa treatment have almost wiped out trachoma in this country. Although smallpox is responsible for 10 to 20 percent of blindness in some countries which have not had the benefits of the advancing medical sciences, it is virtually unknown here. In only 20 years there has been a reduction of 60 percent in syphilis as a cause of blindness among children in schools for the blind because many States have enacted wise legislation requiring blood tests before marriage and early in pregnancy. Health education and effective treatment of infected patients also have reduced the effects of syphilis.

Even eye injuries as a cause of blindness among children in schools for the blind show a significant decrease: 40 percent in the past 20 years. This decline can perhaps be attributed in part to sound legislation such as that controlling sale of the more dangerous kinds of fireworks and controlling use of air guns, in part to health education of young parents by public health nurses and social workers, and in part to improved methods of therapy.

Retrolental fibroplasia as a cause of blindness has come to play an all too prominent role. It is estimated that there now are 8,000 children blind from this one cause. For years, the National Society for the Prevention of Blindness has been interested in promoting research on this problem. The organization established

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a committee in 1951 which finally led to a coordinated attack on blindness, participated in by 18 hospitals and 75 investigators and sponsored by the Public Health Service's Institute of Neurological Diseases and Blindness, the National Foundation for Eye Research, and other agencies as well as the society.

Although the entire story of the mechanism of how oxygen leads to retrolental fibroplasia and how oxygen can be given when necessary without producing blindness has yet to be elucidated, steps already taken to avoid excessive administration of oxygen to premature infants have virtually eliminated this cause of blindness from many hospitals. In the State of New York, 18 newborn infants were reported to the Commission for the Blind in 1954 as being blind from this disease in that year. In 1955 this figure had dropped to 3. The national society has contributed more than \$40,000 in grants-in-aid for research in retrolental fibroplasia.

The discussion thus far—ophthalmia of the newborn, syphilis, injuries, and retrolental fibroplasia—has provided examples of primary prevention, action to prevent blindness even before the cause begins to operate.

### **Impact of the Later Years**

Despite the progress that has been made, there is reason to believe that the actual number of the blind in the United States is increasing. This increase is in part produced by our increases in population. In part it also reflects the advances made in the past 50 years which have added 20 years to the average span of life—from 48 in 1900 to 69.6 at present. Today, many more persons live to an age when glaucoma, cataracts, and other eye diseases are more frequent and when such diseases as diabetes and arteriosclerosis produce loss of sight.

The chronic eye diseases of middle and later life constitute a much greater problem than those discussed earlier. Many of them cannot be cured in the light of our present knowledge, and the best we can hope to do for some of these conditions, such as glaucoma, is to retard them. This kind of prevention of disability is coming to be known as secondary prevention: The disease is clearly present, but something can be done through early detection and

optimum treatment to prevent or at least to lessen the extent of disability. In some instances, such as cataracts, retinal detachment, and corneal disease, surgery often restores sight if performed at the proper time.

Much of the prevention of blindness in the past has been accomplished by influencing relatively small numbers of people. For example, boards of education can require vaccination against smallpox before a child enters school; then their staffs will see to it that every child is vaccinated. Boards of health or State legislatures can require the use of prophylactic drops in babies' eyes immediately after birth, and proper enforcement procedures will make sure that this is done. Hospitals can require adequate control of oxygen if it is prescribed for a premature infant, and we should have little or no more retrolental fibroplasia.

But there seems to be no easy procedure that we can direct people to follow to prevent blindness from most of the eye conditions of middle and later life. The patient with a detached retina needs early and competent care if the required surgery is to be successful. The patient with acute uveitis, with glaucoma, with many other conditions, needs early care and needs to follow the oculist's instructions to the letter if he hopes to avoid loss of sight. The patient with a detached retina must get into the proper hands, accept the diagnosis, and be willing to have an operation promptly.

This means that we are discussing individual, highly personal problems. It means that we must somehow influence in the right way every one of the 167,000,000 persons in the United States if we are to make progress in combating blindness from these causes.

The average person, in my opinion, does not like to go to a doctor, even when he has serious eye symptoms. Even though he is frightened by the idea of blindness, he has a good deal of inertia and hopes that somehow his eye trouble will go away by itself, the way it came. He did not ask for his symptoms and cannot understand why he should be bothered by them. I think he would far rather buy a new television set than pay for an eye examination, and if, by some chance, the eye examination reveals nothing wrong, he feels cheated. If a serious eye disease such as glaucoma is diagnosed, he may

react as did 69 percent of the eye patients in a recent study made by a California oculist (1). Since they never before had heard of the disease, how could they understand its implications? Many persons may believe that eyedrops advertised in a bus, new eyeglasses, or even proper illumination are all that is needed to treat or avert what you and I know to be serious conditions.

### **Need for Continuous Education**

In 1951, Owens, Cox, and Hochreiter (2) reported on 100 blind persons in the Baltimore area in an attempt to determine why they had lost their sight. For approximately half the patients, they found that either there was no effective care or treatment available or, if available, that everything possible had been done at the right time, without avail.

For the other half, it was felt that blindness could have been prevented but was not for various reasons. For 31 out of 50, the reason was attributed to the patient: lack of knowledge of early symptoms of eye disease and the importance of seeking and carrying out competent ophthalmological advice. In some cases where the patient sought advice from the family doctor or some other practitioner, referral to an ophthalmologist was not made for many months or even years. A few of the preventable cases of blindness were from accidents.

Medical societies and departments of public health are doing much to inform the public on health matters in general, but their efforts in so specialized a field as blindness prevention need reinforcement. Therefore, a voluntary citizens' agency, such as the national society, in which both professional and informed lay persons are joined in partnership, can make a significant contribution in bringing about a more informed public. If he is one of those who has been informed, an eye patient will be more likely to cooperate in the plan of treatment outlined when told of the diagnosis and the regimen to be followed.

### **The Mass Media**

Our public education program has become more effective since we have given it full-time

attention. The month of September 1955 was again proclaimed "Sight Saving Month" by 30 State governors and by many mayors. Because the national Advertising Council approved this intensive campaign, it is estimated that more than a million dollars' worth of radio and television time was devoted to messages about care of the eyes. Science reporters and magazine writers in increasing numbers are coming to our headquarters for suggestions and to verify their data. During the past 3 years several magazines which reach millions of persons have carried well-written and scientifically sound articles on eye problems, whereas less than 20 years ago no such story had ever appeared in the mass media. Although misleading articles and those apparently designed for self-promotion are published occasionally, the careful checking being done by many magazines and newspapers indicates vast improvement in the reliability of the material they use.

Aside from the mass media of communication, the national society works with all professional groups that are or should be interested in sight conservation. For instance, some of our information efforts are directed toward keeping the general medical practitioner and the pediatrician up to date on advances in ophthalmology.

### **Local Programs**

One of our departments works with teachers colleges and State and local departments of education to keep the million school teachers of our country alert to eye health problems. To improve vision screening programs for school and preschool children, the national society has helped to support important research on vision testing, and our nurse consultant works with public health nurses and volunteer groups.

The value of medical social service activities has been clearly demonstrated in such centers as the eye and ear infirmaries of Massachusetts and of Illinois. Our staff medical social work consultant seeks to improve the provision of followup for eye clinic patients and those needy persons being served in State and local welfare programs.

Because we have not yet arrived at that millennium when all persons have chosen an eye

doctor and go to him periodically for an eye checkup, it seems well to encourage experimentation with screening programs for adults as well as for children. Among adults, it is evident that a screening test for visual acuity, ophthalmoscopic examination, taking the tension with a tonometer, and possibly using the Harrington multiple-pattern test of field of vision will discover about one person in 50 over the age of 40 years with glaucoma (3-5). Where such surveys have been conducted, at least one result has been that everyone concerned has learned what glaucoma is and what value there is in early diagnosis and continued treatments.

In vision screening activities, participated in by the national society in various States, an important byproduct has been the education of volunteers assisting in the programs. In the course of their training, hundreds of volunteers have become informed about such eye topics as the need for early care of children with strabismus. They have learned that there is no such thing as a "minor" symptom of eye trouble and that what might appear to be a relatively trivial symptom, such as slight blurring of vision or difficulty in reading the newspaper, may be the only early warning sign one will have of so dangerous an eye disease as glaucoma. Nearly all these volunteers are women, and their new-found knowledge finds its way to club meetings, coffee parties, and bridge games. A well-trained volunteer may help to pass on information to 5 or 10 other adults.

### **Safety Glasses in Industry**

It is estimated that 300,000 eye accidents still occur each year in industry, in vocational shops, and at home. Our objective in industry is to promote not only eye safety but also improved screening programs which will help to reveal otherwise unrecognized eye disease. Eye safety is being aided by an incentive program known as the Wise Owl Club, which originated in St. Louis in 1947. Admission to this exclusive club is won by a worker if his eyesight has been saved by the conscientious wearing of safety glasses at the time a work accident occurs.

The occasion of an award dramatizes the fact that a man's vision has been saved, a fact that

otherwise might pass unnoticed. We now have records on nearly 10,000 Wise Owl members who have had the sight of at least one eye saved by wearing safety glasses. More than one-fourth of this group saved the sight of both eyes. This is an impressive number of men and women who would be blind but for the preventive measures that have been accepted.

### **Need for Research**

The Baltimore study by Owens showed that about half of the blindness now occurring could not have been prevented no matter what was done. The need for both fundamental and clinical research in the blinding eye diseases is therefore obvious. The support that the national society has given to some projects in this field has already been indicated. We have also tried to stimulate the interest of various foundations in the field of eye research, and at various times have presented information on the need for ophthalmic research to congressional committees. In the early days of the national society, it had become apparent that there was need for data on the extent of blindness, on the relative importance of various causes, and on their incidence by sex, age groupings, race, and geographic factors. When the material produced by our statistical division (6) was presented to a congressional committee in a fact sheet in June 1949, Committee Chairman Percy Priest called it "very helpful."

It has already been noted that blindness is costing us at least \$150 million each year. In contrast, the American people are allocating not more than \$3 million, or possibly 2 percent of this amount, to eye research and to organized programs for prevention. One might ask whether we can afford to put more into prevention and into research. The answer lies in our sense of values, indicated by retail sales of nonprescribed eye lotions and eye washes in the amount of \$4,910,000, and mascara, eyebrow pencil, and eye shadow to the sum of \$7,180,000 (7). And, of course, billions more are spent on commodities and services which are far less valuable than the protection of human eyesight.

In quoting these figures I do not wish to imply that anyone should be deprived of what en-

hances or adds pleasure to life. In view of what America is willing to spend on products of such ephemeral value, though, this Nation will certainly appreciate the greater and more lasting value of research and prevention. If we can stimulate such research and apply present and future knowledge to the prevention of blindness, our progress will exceed even the impressive advances already achieved.

#### REFERENCES

- (1) Vaughan, D. G., Jr., Asbury, T., Hoyt, W. F., Bock, R. H. Swain, J. M.: Glaucoma survey of 1,000 hospital patients. *In* Tr. Pacific Coast Ophthalmological Society, 1955, p. 99.
- (2) Owens, W. C., Cox, E. M., Hochreiter, Mrs. F. C.: Why are they blind? *Sight-Saving Rev.* 21: 126, Fall 1951.
- (3) Brav, S. S., and Kirber, H. P.: Mass screening for glaucoma. *J. A. M. A.* 147: 1127-1128, Nov. 17, 1951.
- (4) Hankla, E. K.: Glaucoma case finding in Philadelphia. *Pub. Health Rep.* 68: 1059-1064, November 1953.
- (5) Harrington, D. O., and Flocks, M.: Multiple pattern method of visual field examination. *J. A. M. A.* 157: 645-651, Feb. 19, 1955.
- (6) U. S. Congress House Committee on Interstate and Foreign Commerce: Hearings . . . National health plan. H. R. 4312 and 4313 (identical bills) and H. R. 4918. May 20, 24, 25, June 7-10, 16, 17, 21-24, 29, 30, and July 6, 1949. 81st Congress, 1st sess. Washington, D. C., U. S. Government Printing Office, 1949, pt. 2, pp. 505-510.
- (7) Topics Publishing Co.: What the public spends for drug store products, 1954. New York, N. Y., 1955.

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## Air Pollution Demonstration Projects

A grants-in-aid program for demonstration projects related to air pollution and its control has been established by the Public Health Service. These projects are for the purpose of evaluating or demonstrating the effectiveness of various methods of preventing and combating various air pollution problems.

State and local government air pollution control agencies and other public agencies may apply for grants-in-aid for air pollution demonstration projects at any time.

Applications will be reviewed on the basis of the relative need for such a project; the adequacy of facilities and skills available; the characteristics of the air pollution problem in the area; how the results will apply to other parts of the country; and how much the applicant can contribute to the total cost of the project.

Grants for demonstration projects will be for a specific amount paid in a lump-sum to the grantee for 1 year. They may be renewed for two additional periods of 1 year each, depending on the availability of Federal aid. Demonstration project activities must begin within 6 months after the grant is approved and must be used only for the specific project.

Information about these grants may be obtained from any of the Regional Offices of the Public Health Service or from the Chief, Division of General Health Services, Bureau of State Services, Public Health Service, Washington 25, D. C.