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In 1959 a conference on training in physiological optics was held at Indiana University supported by a grant from the National Science Foundation. The conference was attended by representatives from all of the optometry schools in the United States and Canada. During the course of the conference consideration was given to the definition and scope of physiological optics as a discipline. Some twenty-nine separate definitions were considered. These are listed in the "Transactions and Reports of the Conference on Training in Physiological Optics," which was a report of that meeting. I would like to quote here just three of the twenty-nine separate definitions in order to provide some idea of the scope and the diversity of physiological optics:

(1) "The science of vision encompassing the physical events which influence visual stimuli from the moment they enter the eye; the physiological functions of seeing from stimulus reception to perception; and the related psychological factors of individual response which in any way could affect the study and understanding of the physiological processes themselves."

(2) "Broadly, the scientific study of vision and the eye. Specifically, the branch of science concerned with the physiological and psychological phenomena of vision, the biological processes underlying such phenomena, and the physical characteristics of visual stimuli."

(3) "Physiological optics is the science of the visual perception by the sense of sight . . . accordingly the theory of the visual perceptions may be divided into three parts: 1) the theory of the path of light in the eye . . . may be entitled the dioptrics of the eye; 2) the theory of the nervous mechanism of vision; 3) the theory of the interpretation of the visual sensations. Thus the difference between physiological optics and physical optics is that, whereas the former is concerned with the properties and behavior of light only as they pertain to visual perception, the latter investigates optical phenomena and laws independently of the human eye."

The latter definition is one provided by Hermann von Helmholtz some hundred years ago. Helmholtz is generally recognized as the father physiological optics.

In addition to its concern with the scope and definition of physiological optics, the conference considered specifically the objectives of training in physiological optics, the course content necessary and desirable in a physiological optics curriculum, the content and character of laboratory exercises in physiological optics laboratory courses, the availability and nature of laboratory equipment specifically required in physiological optics laboratories, the textbooks and journals pertinent to the field and the library classifications of materials suitable to and pertinent to the study of physiological optics. A particularly valuable outgrowth of the conference was the formation of a committee to prepare a directory of personnel involved in vision research. Such a directory was compiled within the year following the conference and consisted of those vision researchers throughout the world who were specifically involved in physiological optics research. This directory has been revised from time to time since then.

This background concerning the education and research in physiological optics has been intended to give this committee a broad overview of the contributions that optometry and its graduate programs can offer in vision research. We recognize the intended function of a National Eye Institute as the conduct and supervision of research to prevent blindness and visual disorders. We cannot, however, support this bill in its present form. Such research must include broad studies of the normal individual and the normal processes of vision as well as those of disease and abnormalities. Optometry's training and research programs in physiological optics which have been developed for so long and cover such a broad range of vision research must be included in the activities of the National Eye Institute. If we can be assured of integral participation in the activities of the Institute we could then endorse this legislation.

STATEMENT OF WILLIAM R. BALDWIN, O.D., PH. D., DEAN, COLLEGE OF OPTOMETRY,
PACIFIC UNIVERSITY, FOREST GROVE, OREG.

My name is William R. Baldwin. I am Dean of the College of Optometry, Pacific University, Forest Grove, Oregon. I received my Bachelor of Science