

Jonas Stein Friedenwald

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The untimely death of Dr. Jonas Stein Friedenwald occurred on Nov. 5, 1955, after a comparatively short illness. His passing is undoubtedly one of the greatest losses to medicine today. His stated specialty was ophthalmology but his interests extended into many other fields of medicine and science. He was especially interested in vascular abnormalities associated with diabetes. He served with distinction on the Editorial Board of this Journal from its inception until his death.

Dr. Friedenwald was a member of a prominent Baltimore family whose interest in medicine extends back three generations. His grandfather, Dr. Aaron Friedenwald, was Professor of Ophthalmology at the College of Physicians and Surgeons in Baltimore from 1873 until his death in 1903. His father, Dr. Harry Friedenwald, held the Chair of Ophthalmology at the same college from 1902 until it merged with the University of Maryland in 1915. He then became Professor of Ophthalmology at the University of Maryland. Dr. Harry Friedenwald was not only internationally known in his specialty of ophthalmology, but he was also a noted medical historian and wrote many articles on the contributions of Jews to medicine.

With this rich heritage Jonas Stein Friedenwald was born on June 1, 1897. He received his early formal education at Calvert and Friends schools and entered The Johns Hopkins University in 1913 and was graduated with honors in 1916. He then entered The Johns Hopkins University School of Medicine and was graduated with a distinguished record in 1920. Thereafter, he served for a year as a house officer in medicine in The Johns Hopkins Hospital and in 1921-22 studied pathology of the eye at Harvard University under Dr. Frederick Verhoeff. He then went to Philadelphia for a year where he worked under Dr. deSchweinitz. In 1923 he returned to Baltimore and entered the practice of ophthalmology with his father. During the same year he was appointed

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Instructor in Ophthalmic Pathology, a subdepartment of the Department of Pathology of The Johns Hopkins University School of Medicine under Dr. George MacCallum. With the founding of the Wilmer Institute in 1925, Dr. Friedenwald was appointed Instructor in Ophthalmology in charge of the pathology laboratory. In 1929 he was appointed Associate in Ophthalmology and in 1931 Associate Professor, a position which he held until his death.

Environment and heritage greatly influenced Jonas Friedenwald to begin the extensive study of the scientific aspects of medicine in which field he became so famous. The Friedenwald house at 1212 Eutaw Place was both his father's home and office. Here many of the great men of medicine often gathered to listen to a visiting scholar or to examine and to review some of the rare books and manuscripts in his father's private collection.

Dr. Friedenwald, during his active professional life, made almost 200 scientific contributions to the literature. It is interesting to review their sequence. They began with descriptions of histopathological abnormalities and clinical syndromes. They then passed to problems in optics related to the ophthalmoscope and slitlamp, then on to biochemistry. His book on ophthalmic pathology written when he was only 30 years of age and published in 1928 was required reading for most young ophthalmologists. In 1952, in conjunction with others, he revised and greatly expanded this publication. There is little doubt that Dr. Friedenwald was one of the greatest ophthalmic pathologists of his time. His studies on the dynamics of aqueous flow in the eye will go down as classics of meticulous systematic investigation of a difficult problem. His works in this field have done more than any other investigator's to solve the problem of glaucoma. Through all of his experimental work and in his publications he made use of his background in mathematics. Thus he wrote on such diverse works as "Population Growth in Palestine," "Calibration of the Tonometer," "Knowledge of Space Perception in the Portrayal of

Depth in Painting," "Elementary Kinetic Theory of Enzymatic Activity," and "Some Implications of Modern Physics for the Biologic and Social Sciences."

Among his many and varied investigations the problem of diabetic retinopathy was one which was of special interest to Dr. Friedenwald. Characteristically, his approach was broader than clinical. His extensive knowledge of histopathology, biochemistry, and physiology was applied not only to retinopathy per se, but to the investigation of the general metabolic disorders which occur in diabetes mellitus.

His work on the pathologic aspects of this disease and the technics which he developed were instrumental in differentiating between the retinal lesions of diabetes and those of other retinopathies. These studies defined a specific ophthalmoscopic, as well as pathologic picture, of diabetic retinopathy. His contributions were of great value in pointing out the relationship of the Kimmelstiel-Wilson renal lesions to the vascular lesions of the retina.

At the time of his death, one of Dr. Friedenwald's major research projects was an investigation of the relation of adrenal cortical secretion to vascular complications in diabetes. He postulated an interaction between adrenal cortical function and the vascular lesions of the retina and kidney. In addition to investigating adrenal cortical activity in diabetics with and without retinopathy, as well as in experimental animals, he further elaborated this theory by directing his attention to the effect of cortisone on mucoid metabolism.

To quote from one of Dr. Friedenwald's papers, "It would appear that the happy and exciting threshold has been reached at which specific and potentially answerable questions can be formulated regarding the pathogenesis and etiology of this vascular disease."

His monographs will always be classics in this field and he will remain not only as a stimulus for further investigation, but as the foundation upon which the ultimate solution of this problem rests.

The tabulation of specific contributions made by this great investigator could go on and on, but it would not adequately depict the calm and usually mild-mannered man who at times could be alarmingly stern or biting sarcasm if provoked beyond all reason. In spite of the tremendous amount that he was able to accomplish, he never appeared rushed, and always had time to sit and chat with a truly interested neophyte in the field of medicine or other branch of science. His enormous fund of knowledge and experiences were sought equally by students, residents, clinicians, and research men in various fields both at Hopkins and throughout the country. He could discuss on equal terms with top-flight specialists

many complex phases of both science and clinical medicine.

He was also keenly concerned about world affairs and profoundly interested in the development of Israel. On several occasions he went to Jerusalem to assist in the planning and development of the medical school and hospital of Hadassah.

Dr. Friedenwald's achievements were frequently recognized during his lifetime. He received the Research Medal of the American Medical Association in 1935, the Proctor Award in 1948, the Lucien Howe Medal of the American Ophthalmological Society in 1951, and the Donders Medal of the Dutch Ophthalmological Society in 1952. In the spring of this year he was to have given the Doyne Lecture before the Oxford Ophthalmological Congress as his father had in 1931. His keen scientific mind, complete honesty, and understanding of his fellow man made him a frequent counselor on important committee posts. He was a member of the Council of Neurological Diseases and Blindness, a counselor for the Hadassah Hospital and Medical School in Israel, a member of the Committee on the Standardization of Tonometry, Radiation Cataract Committee, and many other local and national committees. He was a member of the Editorial Board of the *AMA Archives of Ophthalmology*, *Ophthalmologica* and *Journal of Histochemistry and Cytochemistry*.

With all these activities Dr. Friedenwald was still able to carry on an active private practice in ophthalmology. Most of his clinical observations and evaluations were based on patients seen in his private practice and on the records of his father's patients. He was a kind, sympathetic, and painstaking physician, and was greatly loved by his many faithful patients.

In 1925 he married Marie Louise Sherwin, a nurse of The Johns Hopkins Hospital, whom he had met while he was on the house staff of the Osler medical service. Their marriage was one of perfect understanding and companionship. There is no doubt that Dr. Friedenwald's vast accomplishments would have been greatly curtailed had it not been for Mrs. Friedenwald's complete devotion to him and to his interest in science.

The loss of such a man as Jonas S. Friedenwald is always a most sorrowful happening, but this is particularly true when it occurs to a man in his prime of 58 years. His accomplishments were great by any standards, but had he lived another ten or fifteen years, they would have increased many fold for his knowledge of chemistry and mathematics was increasing each year, and its application was becoming more obvious to each new problem he undertook.