



# Walter Morton Grant



W. Morton Grant, M.D., the emeritus David G. Cogan Professor of Ophthalmology who brought science to the study of glaucoma and who wrote the standard text on ocular toxicology, died at age 86 in Winchester, Massachusetts on November 17, 2001.

Dr. Grant reached ophthalmology by a most unconventional route, and a review of his early history might prove instructive. He was born on July 23, 1915, to William and Vera (nee Dahl) Grant in Lawrence, Massachusetts. With the indulgence of his general practitioner father, who undoubtedly realized that his child's thirst for knowledge could not be entirely quenched in a conventional setting, he was given a one-year reprieve from school at the age of 13. The exact details of how he spent that year are lost, but the best anecdotal evidence is that he concentrated on teaching himself chemistry and conducting his own chemical experiments, some of which produced anything but the expected, let alone desired, result. At the same time he developed an abiding interest in plumbing and refrigeration that stood him in good stead later in life- not only when he installed the Howe Laboratory's air conditioning system, but also in his studies of the pathophysiology of glaucoma. He then completed Exeter with honors and entered Harvard College, where

he pursued his interest in chemistry and was president of the Chemistry Club. An outstanding student, he obtained his bachelor's degree in 1936 after only three years. We may infer that he was not entirely consumed by classroom work, as he found time to become an accomplished fencer. The young man appeared set on a career in organic chemistry when his father intervened and convinced him to attend the Harvard Medical School.

The key event in his professional life occurred in his fourth year when he enrolled in an ophthalmology elective offered by Dr. David Cogan, newly appointed director of the Howe Laboratory of Ophthalmology at the Massachusetts Eye and Ear Infirmary. The rest is ophthalmic history. After a hiatus for internship at the Henry Ford Hospital, he returned to the Howe Laboratory and the Massachusetts Eye and Ear Infirmary. This was wartime, and the government had charged the Howe Laboratory's scientists with

investigating vesicant and other chemical injuries of the eye. This project came naturally for someone with Dr. Grant's bent for chemistry. Dr. Grant established his laboratory at the Infirmary and remained there as an active investigator until 1991.

Dr. Grant's portrait is fittingly juxtaposed between those of Dr. David G. Cogan and Dr. Paul A. Chandler in the corridor adjacent to the Howe Library. Dr. Chandler was Dr. Grant's closest clinician-collaborator, and Dr. Cogan was Dr. Grant's closest scientific colleague. Dr. Grant and Dr. Cogan were the senior members of the Howe Laboratory which, in its heyday, was the nation's leading ophthalmic research facility. In the 1950s, '60s and '70s many future leaders in ophthalmology were taught their laboratory skills in this exciting and stimulating environment.

Readers will no doubt be surprised to learn that Dr. Grant, who rose to the rank of surgeon at the Infirmary, was an entirely self-taught ophthalmologist and glaucoma expert, having dispensed with both a residency and a fellowship! This was remarkable in Dr. Grant's era; now it would be unthinkable. As one might expect, his spotty and unorthodox preparation led to difficulties in passing the certifying examinations of the American Board of Ophthalmology. The written test posed no problems for him, but he failed (but later passed) the physiology and pharmacology sections of the oral examinations. Questions on the pathophysiology of glaucoma proved to be the main hurdles, and he resolved to redress his deficiencies. In what might be a record for overcompensation, he devoted the remainder of his career to the investigation of the pathophysiology and pharmacotherapeutics of glaucoma and became the master of these fields.

When Dr. Grant embarked on his landmark experiments on aqueous dynamics, the mechanism responsible for the elevation of intraocular pressure in open angle glaucoma was far from understood. To address this question experimentally, he devised a model using enucleated human eyes that permitted him to calculate the facility of aqueous outflow and to manipulate the anterior chamber angle structures under direct microscopic observation. He showed decisively that the trabecular meshwork was the major site of resistance to aqueous outflow in the human eye. He followed up on these early experiments by extending the investigations to eyes damaged by various types of glaucoma. He was also able to manipulate the system to study the effect of vitreous or blood in the anterior chamber. As recently as 1988 he was reporting modifications in the method. The insights gained in these experiments were enormously useful to clinicians. Dr. Grant also devised tonography, a technique that permitted clinicians to easily and non-invasively measure the facility of aqueous outflow in patients. A diminished outflow facility accounts for the elevation of intraocular pressure in open angle glaucoma.

Over the decades there were numerous publications, almost all in collaboration with one or another of the glaucoma fellows who came to the Infirmary to study with Dr. Grant. The topics of these papers cover much of the field of adult and pediatric glaucoma and glaucoma pharmacotherapy.

Dr. Grant never had a clinical practice in the ordinary sense, but he participated in the evaluation and management of the patients who were referred to the Infirmary's Glaucoma Consultation Service, which he directed. In caring for patients, as in his laboratory investigations, he was meticulously attentive to detail. During our second-year residency rotation on the Glaucoma Consultation Service, after we had evaluated each patient, we would call him directly on a "hot line" and he would be down from his laboratory in a flash. Dr. Grant would review the history and repeat parts of the examination, especially the gonioscopy. He was usually able to add an observation that significantly influenced the management of the case. His consistently gentle manner with the residents was greatly appreciated; no Socratic

method for him.

Dr. Grant's clinical collaborator was Dr. Paul Chandler, a leader in the diagnosis and management of glaucoma. Dr. Grant often assisted Dr. Chandler in the operating room. They would also meet in the morning over coffee or tea in Dr. Grant's laboratory and discuss various aspects of glaucoma. Sometimes their fellows were invited to join them. It is regrettable that this easy, informal cross-stimulation between clinicians and scientists has all but disappeared from our hospitals. Drs. Chandler and Grant collaborated on an authoritative textbook of glaucoma, which is now expanded in a fourth edition under the able editorship of their former trainee, Dr. David Epstein, Chair of Ophthalmology at Duke University.

The original investigations of chemical injuries stimulated Dr. Grant to conduct a systematic survey of the ocular toxicity of chemical agents. The resultant encyclopedic text, *Toxicology of the Eye*, remains the standard reference on the subject. The fourth edition was co-authored by Dr. Joel Shuman, Professor of Ophthalmology at Tufts Medical School.

As one might expect, Dr. Grant's contributions were widely appreciated and recognized. He received awards in abundance. Most significant were the Howe Medal of the American Ophthalmological Society and the Proctor Medal of the Association for Research in Vision and Ophthalmology. His fellows, many of whom became leaders in the field of glaucoma, honored Dr. Grant and Dr. Chandler by forming the Chandler-Grant Society.

Dr. Grant married Jeanette Poirer in 1936 while still in medical school, a bold move in that era, and the couple enjoyed sixty-five years of marriage. Mrs. Grant survived her husband by only six weeks. They are buried in Richmond, Virginia near the home of their daughter. The Grants are survived by their three children and four grandchildren.

Respectfully submitted,

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