On Presentation of the Proctor Medal of the Association for Research in Vision and Ophthalmology to Dr. Adolph I. Cohen

Harris Ripps

Dr. Neufeld, Officers and Members of ARVO, Ladies and Gentlemen: In 1947, this Association announced receipt of the endowment that established its oldest and most prestigious award—The Proctor Medal. Given in memory of Dr. Francis I. Proctor, the medal is awarded for outstanding contributions in ophthalmic research, and reflects Dr. Proctor's passionate interest in stimulating investigative study of ocular anatomy, biochemistry, physiology, and pathology. Among the list of distinguished recipients, few have worked in all of these disciplines with such remarkable success as has been achieved by this year's awardee, Dr. Adolph Cohen.

One of the fringe benefits of introducing an honored lecturer is the opportunity it affords to rummage through the family archives in an attempt to discover the forces that led inexorably to our laureate's preeminence in science; the exercise proved quite revealing. When only a toddler, Dolph was introduced to the Brooklyn Museum, and the lad looked forward with wild enthusiasm to his weekly visits. It appears that the natural history displays housed in the children's wing of that venerable institution made an immediate and lasting impression on young Dolph, and as one might expect, he went on to become President of the Biology Club in both Junior and Senior High School. In due course, he entered the City College of New York as a Zoology major. But the "Gathering Storm" was upon us, and before completing his second year, he was summoned to duty in the U.S. Army Air Transport Command for training as a paramedic. He adapted quickly to army life and came to appreciate the "logique militaire" when, after being issued a full supply of Arctic gear, he was ordered to proceed forthwith to the tropical island of Bermuda. There was little opportunity for sun and surf, however, for it was here that our most seriously ill and wounded were brought for treatment. Nevertheless, in his spare time Dolph trained himself in lab techniques and completed his tour of duty as the head of the hospital's laboratory service.

Returning to civilian life, Dolph finished his degree at CCNY, enrolled as a graduate student in embryology and zoology with Dr. Lester Barth at Columbia University, and after earning his doctorate, went off for 2 years of postdoctoral work with Danielo Mâzia at Berkeley. Because Dolph is so closely associated with the vertebrate visual system, you may not be aware that these early years were spent near the bottom of the phylogenetic scale, for he was working then on Tubularia, Hydra, and sad to say, the effects of starvation on Amoeba proteus. Depriving even a single cell of its sustenance seems rather cruel practice—not at all in keeping with Dolph's gentle nature—and these were probably difficult times for him.

At any rate, his research and his life underwent dramatic changes soon after he received an NIH fellowship to study with Dr. Oliver Lowry at the Washington University Medical School. In St. Louis, Dolph met lovely and talented Elizabeth Cavanaugh, who was to become his wife, and with whom he shares a love of nature, art, and music that goes beyond the ordinary. On visiting their charming home, only a philistine of the first water could fail to appreciate the depths of their commitment to cultural and intellectual pursuits. This has had a profound effect on their offspring, and Liz and Dolph are justifiably proud of the accomplishments of their sparkling children: Ethan, a graduate student in Anatomy at Penn, and Ann, now a law student at N.Y.U.

Dolph also prospered scientifically at Washington University. His work on the microdissection and biochemical analysis of single cells was going swimmingly well, and he was appointed to the Anatomy Department. Nevertheless, it was Dolph's good fortune to come in contact with another faculty member, Bernie Wortman, who in later years at the NIH was to be so helpful to so many of us. Bernie urged Dolph to turn his attention to eye research, and Dolph had the good sense to take this sound advice. What followed was a series of papers on the lens, retina,
optic nerve, and ocular development, many of which have become classics in the field. It was not long before his work attracted the attention of Dr. Bernard Becker, whereupon Dolph moved his lab to the Ophthalmology Department, in which he now holds the rank of full professor.

Time does not permit rendering a complete account of Dolph’s scientific achievements, but I think it appropriate to mention just a few of his landmark contributions.

Many of you will recall that nearly 20 years ago Dolph published a little gem in Nature in which he described the tight junctions that exist between cells of the pigment epithelium. In it he suggested that these contacts not only provide the anatomical basis for the high resistance R membrane often encountered by electrophysiologists, but also that they probably form an important component of the blood–retinal barrier. He was right of course on both counts. That same year he presented evidence that rod outer segment discs are isolated from the cell’s plasma membrane, and in a later series of innovative studies using lanthanum and ferritin as tracer molecules, he showed conclusively that he was right again. Soon thereafter, he pioneered the study of the retinotoxic effects of monosodium glutamate that was to pave the way for his postdoctoral student John Olney and others interested in the cytotoxicity of excitatory amino acids. And then there is the large body of work during the past 10 years in collaboration with his former mentor Ollie Lowry on the regional localization and pharmacology of taurine, neurotransmitters, and cyclic nucleotides. I expect you will be hearing a good deal more on this subject in Dolph’s talk.

Claude Bernard has said “Great men may be compared to torches shining at long intervals, to guide the advance of science.” The Trustees of the Association for Research in Vision and Ophthalmology have taken this opportunity to acknowledge the brilliance with which Dolph’s torch has shone.

On their behalf, it is my privilege and great pleasure to present the Proctor Medal for 1984 to a dear friend and colleague, Dolph Cohen.