Remarks made on acceptance of the Proctor Medal Award

To say that I deeply appreciate the honor you have bestowed upon me would be a very true but also very incomplete statement of my feelings. Even though you have given me ten months to grow into the position of the recipient of the Proctor award, I still have serious misgivings about my qualifications. I am being haunted by a quotation from an early English comedy by George Chapman, which goes as follows:

"Fortune, the great commandress of the world,
Hath divers ways to advance her followers:
To some she gives honour without deserving,
To other some, deserving without honour."

I fell in love with this piece as a student in a course on English literature. It became even dearer to me when I learned that the author was also an early translator of Homer. But in the last ten months, the reference to "honour without deserving" has acquired a new, unsettling meaning for me. In this uncomfortable situation, I have been helped by retreating to the memory and to the shelter of the people who have been most influential in steering me through my professional life. A few steps in this retreat may be of interest to you.

I received my introduction to ophthalmology at the University of Vienna, in a setting and at a time most favorable for learning. The ratio of full-time or nearly full-time staff members to residents was about one to one. In addition to the regular clinical duties, every staff member pursued one or several projects and made it easy and attractive for us younger to participate. This created positions in which we could function with some measure of effectiveness from the very start of our training.

Special incentive to learn and discover came from the fact that there were two university eye clinics, located only a quarter of a mile from each other, providing reason for some degree of polite but determined competitiveness. Thus my relationship with Dr. von Sallmann, who became my scientific idol during my first year in ophthalmology, but unfortunately was on the staff of the other eye clinic, did not outwardly become a very friendly one until we both found ourselves in the United States.

In the medical school I had the good fortune of being taken in by the department of physiology, where I came under the influence of direct disciples of John Scott Haldane and Otto Warburg. Thus I became the first ophthalmologist to place aqueous into the first Van Slyke manometric blood gas apparatus that became available in Vienna. I made another "first" by placing crystalline lenses into the first Warburg apparatus in Vienna. As an excuse for my insignificant results, I could mention the dearth of collateral data, but there also was a very definite lack of understanding on my part what controlled conditions really meant. As a technician in gas analysis, however, I reached considerable competency. Even today, I believe I could hold my own against anybody in this audience, including your best technicians, in procedures such as the introduction into the Van Slyke apparatus of small fluid samples under mercury or paraffin oil.
Among my early accomplishments, I should also mention that I did particularly well in performing anterior chamber punctures on horses. I got on good terms with this wonderful species during World War I. This acquaintance has stood me in good stead ever since and particularly in 1925, when we were casting about for an animal with large anterior chambers for the study of O₂ and CO₂ absorption by the aqueous. That was the subject we thought we should pursue in those days. There probably are not many investigators in this audience who have performed anterior chamber punctures on the living, standing-up, unsedated, only topically anesthetized horse without mishaps. I found it a rather simple procedure, but do not ask me what the ascorbic acid content of the aqueous is in horses. My paracenteses in horses were made in 1925 and 1926; the scurvy-curing agent was isolated from lemon juice by Waugh and King in 1932. The structure of ascorbic acid was not established until 1933.

Clinically, I enjoyed the advantages of a large medical center with the extra stimulation that comes from many visitors from other countries. Needless to say, I was perfectly happy and never looked at the grass on the other side of the fence. I almost resented, as an intrusion on my happiness, a telegram from the University of Chicago, which arrived about the middle of November, 1927, and contained an offer of an assistant professorship in E. V. L. Brown's newly organized division of ophthalmology. My ignorance of the United States was more than profound in those days. I did not even know that what I had in my hand was a message that had traveled via the transatlantic cable. My father, an M.D. and editor of a medical journal, was much more impressed with the contents of the cablegram, while my French-educated mother quietly remarked that, as far as she knew, the only Austrians who ever went to America were people who were in trouble with the law. The decision, however, was made by my chief, Joseph Meller, who almost ordered me to accept, on the grounds that no other Austrian ophthalmologist had ever been offered a position combining as many opportunities as the one offered to me by the University of Chicago.

I accepted and came, in January, 1928, under the direct influence of the late Dr. E. V. L. Brown, to whom I owe, among many other debts, the realization of the importance, in ophthalmology or any other branch of medicine, of longitudinal observations—covering long periods of the patient's lifetime. With his continuous observations on the growing eye and his follow-up studies on cases of sympathetic ophthalmia, E. V. L. Brown set a fine example of longitudinal observations of lasting value. He also made me realize, more than anybody else before, the large role which the very act of observation may play in modifying the phenomena that we are trying to observe. He proved to me that the appearance and reactivity of the conjunctival and episcleral vessels can be very markedly altered by the radiation given off by the slit lamp.

My status at the University of Chicago from 1928 to 1933 was officially that of an assistant professor and later associate professor of ophthalmology. Actually, a good part of the time I was a graduate student, on an informal basis, of the physiology and physiopathology of the central nervous system, under the tutelage of the neurosurgeon Percival Bailey, the neuropsychologist Karl S. Lashley, and the neuroanatomist Steven Poljak. I received my lessons in neurosurgery in the operating room and in the neurology clinic where Dr. Bailey, following the custom of the school of Cushing, always made the ophthalmologist feel part of the team. I first got to know Karl Spencer Lashley as a charming host during regular Sunday afternoon chamber music sessions at his house. In the field of music, it would only be fair to say that his enthusiasm exceeded his technical skill. But around midnight, when you were too tired physically to play any more and too worked up to go to bed, the physiology of the visual pathway and
visual cortex as elucidated by the systematic experimental studies of the Lashley school became a most suitable subject of conversation to guide us back to earth. What I learned there about correlations between mammalian behavior and experimentally altered brain function became a strong stimulus in my studies of the effect upon human behavior of parietal or occipital lobe lesions.

I consider Steven Poljak the last pure retinologist of the era of the light microscope. He was most fascinating as an interpreter, in dynamic terms, of the histology of the human retina. When we were engaged in the tracing through the third visual neuron of small experimental lesions in the macula of Macacus rhesus, he insisted that the job of singling out and catching the particular monkey in a large walk-in cage was too rough for an eye surgeon, and never let me try. So this was one aspect of biologic training of which I was deprived at the University of Chicago.

The indebtedness, which I incurred during my stay in Peking from 1933 to 1939, is probably more an indebtedness to the country than to a few individuals. The principal medical lesson I learned was the effect of dietary deficiency, primarily of vitamin A, upon the reactivity of the epithelial and stromal elements of cornea and conjunctiva and, thereby, on the course of many external diseases of the eye.

The wisdom of some of our friends, more than our own, brought us back to Chicago before the outbreak of major hostilities in the Far East. The change from the Peking Union Medical College to the Illinois Eye and Ear Infirmary was, at first, a disheartening experience. To my thinking, the little college in Peking had been a model institution, both as a medical school and a research institute. While it, of course, could do very little toward meeting the medical needs of China, our general policy was in that direction and our in- and outpatients as well as our medical students were well treated. At the Illinois Eye and Ear Infirmary, the unfavorable ratio of learners to instructors, the masses of patients and the poor physical facilities gave me, at first, the impression of a hopelessly inadequate setup. My feeling of frustration is reflected in an incident of which the person concerned, now a prosperous ophthalmologist and member of the teaching staff of a nearby university eye department, reminded me the other day. During my very early days at the Illinois Eye and Ear Infirmary, he presented a patient to me, a lady whose particular eye problem very pointedly brought out our limited diagnostic and therapeutic facilities. After examining her, I could think of nothing else to say but, “Que faire?” To this the young resident replied, “I’m not sure I understood you, but I’ll see to it that the patient is given carfare.”

Needless to say, I soon found out the Illinois Eye and Ear Infirmary was doing more than just giving carfare to its patients. The subject of this address, however, is not what the Illinois Eye and Ear Infirmary has contributed to ophthalmology, but what this institution has contributed to my education. Here again, I gladly acknowledge a deep indebtedness to this institution, its staff and patients, for having opened my eyes to what I would call reality. Unbeknownst to me, I had spent a major portion of my professional life under rather sheltered conditions, sheltered because of unusual resources in terms of manpower, or physical facilities, or both. As most young people might do under the circumstances, I had taken those resources for granted and expected to find them everywhere. More than that, my views regarding ocular surgery had become slanted in the direction of underestimating surgical risks. The extraordinary skill of the surgeons who performed the large majority of all major operations, the excellent rapport between patient and doctor, and the ample auxiliary staff at the institutions with which I had been connected, had produced results that were unattainable at differently structured institutions.

This the Illinois Eye and Ear Infirmary
taught me by making me witness and take the responsibility for complications, some of which I only had read about in textbooks. The complications arose largely from lack of communication between patient and medical and nursing personnel, and this in turn was due to the large segment of patients of foreign birth among the infirmary population. Thus, I owe to the infirmary an insight into ocular pathology that can only be derived from close contact with operative complications. Needless to say, my ophthalmologic horizon was also rounded out by the many schools of ophthalmology represented by the staff of the infirmary and by the wealth of clinical material, which was then and still is the major asset of that institution.

More than at any other time during my professional life did one single person influence me between 1939 and 1955. It was the man who to my thinking laid the foundation of this society. I can honestly say of him that “Thou wert my guide, philosopher and friend,” which of course are the words of Alexander Pope and not mine. I need not describe the late Jonas S. Friedenwald to you, but I would like to say that in no other person have I found that much ingenuity and intellectual versatility combined with that much gentle, constructive understanding of the intellectual weaknesses of other people.

Since 1955, my indebtedness to people who have acted as my guides has increased enormously and has spread to many research institutes in this country and abroad. This dependence on other workers, I flatter myself to think, is part of the world in which we are living and not a sign of approaching senior citizenship. But even if it were the latter, I would still feel fortunate in that I have probably had more opportunities and seen more things in biology and medicine fall into place than most people have in their lifetime.

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