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SCOPE

Richard K. Forster, MD: A Life Through the Lens of an Ophthalmologist and Nature Photographer

By M. Bruce Shields, MD

As ophthalmologists, we have spent much of our careers looking through lenses in the office and the operating room. And I suspect we have all shared the sense of awe as we beheld the exquisite beauty and intricacy of the human eye.

The thousands of examinations that each of us have performed over the years have not only given us a respect for the elegance of nature, but has sharpened our ability and inclination to appreciate the subtlest aspects of all that we see. It is not surprising, therefore, that many of us have adopted hobbies or avocations that incorporate a careful examination and appreciation of the diverse marvels throughout this world in which we live. An excellent example is our colleague, Richard K. Forster, MD, who has spent countless hours looking through the lens of his camera at the wading birds and shorebirds of Florida.

Dr. Forster's love of nature began at an early age. Growing up on a small poultry farm in New Hampshire, he spent many hours in the woods and fields of his family's 68 acres, enjoying the wildlife that included a variety of birds: chickadees, nuthatches, blue jays, crows and occasional pheasants. In 1949, he won a trip to the Eastern Poultry Judging contest in Boston, which furthered his interest in bird anatomy. Although he did some hunting, trapping and fishing in his youth, he decided at the age of 11 to restrict his enjoyment of the outdoors to observing his surroundings and wildlife and participating in environmental conservation.

This early decision to admire and preserve the wonders of nature, he reflects, may have had something to do with his choice of medicine as a career. After graduating from Dartmouth College, he earned his medical degree at Boston University School of Medicine and, following an internship at Boston City Hospital, joined the U.S. Public Health Service and was fortuitously assigned to Miami for two years. While there, he undoubtedly noticed not only a decided difference in the weather between Florida and New Hampshire, but also a vastly greater variety of avian species. In any case, he returned to the Sunshine State for his residency at Bascom Palmer Eye Institute and, after a fellowship at the Proctor Foundation in San

This issue contains the biographical sketches of two major figures in ophthalmology: Drs. Lorenz Zimmerman and Claes Dohlman. Both articles were written by one of their children: Mary Louise Z. Collins, MD and Henrik Dohlman, PhD, respectively. "Zim" and Claes were good friends for many years, as well as competitors on the tennis court. Dr. Zimmerman passed away in 2013. Dr. Dohlman remains clinically active at Harvard and the Massachusetts Eye and Ear Infirmary.

Richard K. Forster, MD

Francisco, came back to Bascom Palmer as chief resident in 1969. He remained there on the faculty for 50 years and counting.

During his long tenure at Bascom Palmer, Dr. Forster rose to international prominence as a leader in external disease and contributed to establishing his institution as one of the finest in the country. He only left for a five-year period (1987-1992), when he was recruited as medical director of the King Khaled Eye Specialist Hospital in Riyadh, Saudi Arabia. He returned to the faculty at Bascom Palmer in Miami and served as interim chair and medical director from 1999 to 2001. In June of 2016 he "retired," but continues to see patients two days per week at the Bascom Palmer facility in Palm Beach Gardens, an arrangement that has allowed more time for his joy of bird watching.

Although an appreciation and enjoyment of nature has been part of Dr. Forster's life since childhood, it took on a more active form in the early 1980s, when he and his wife, Janet, began attending birding field trips and photographing birds in the surrounds of Miami and Sanibel Island. He began with still photography, but an interest in bird behavior, especially the feeding habits of wading birds and shorebirds, led him to get out the family camcorder to document their foraging behavior. Over time, he transitioned from the analog camcorder to a Sony Digital 8 Handycam and then a Sony digital high-definition video camera recorder, the latest model of which he purchased last year. The tradeoff for quality recordings with the new camcorder has been the weight of the camera, which requires the use of a tripod, except when photographing diving or quick-moving birds.

In 2016, he began to organize his videos into DVDs with the professional assistance of a videographer and a recording studio. After completing an hour of recording in the field, Dr. Forster edits the footage, listing the specific birds and the date, time and location of each filming. The videographer then downloads the edits to a work DVD, from which Dr. Forster selects footage and designs the sequence for the final, refined DVD. He then writes and personally records a narration to fit the footage. The results are highly professional DVDs "directed, filmed and narrated by Richard K. Forster" with acknowledgements of his video editor and narration recorder and, most importantly, his "birding partner and wife, Janet F. Forster."

Dr. Forster's first DVD is entitled "The Feeding Behavior of Wading and Shorebirds of Florida," which includes 62 species at various locations in Florida and runs for 61 minutes. Janet Forster felt this was a bit too long for viewing in one session and convinced her partner to divide it into two DVDs, which he did in 2017. Since then, he produced another DVD in 2018, "Wading and Shorebirds of Florida: Favorite Feeding Behaviors," and earlier this year completed his latest, "The Herons of Florida."

Now, you may be thinking that 30 minutes of watching birds enjoy their dinner could be a bit tedious. But having viewed several of his videos, courtesy of Dr. Forster, I can report without fear of being disingenuous, that it is really quite a pleasant experience. The cinematography is of professional quality, the natural settings are lush, and the birds are not only beautiful and exotic, but also intriguing, often humorous and altogether entertaining in their behavior. I highly recommend the videos.

Although most of the Forster's birdwatching and photography has been done throughout Florida, they have also made several trips outside the state, such as Machias Seal Island on the north coast of Maine to observe Atlantic puffins and to the Galapagos Islands with their daughter. Also, while lecturing in Trinidad, he filmed oil birds at the Asa Wright Nature Center and scarlet ibis at Caroni Swamp in the Port of Spain. In addition to producing his DVDs, Dr. Forster has made presentations at assisted-living facilities and museums and has more scheduled for this year. His videos are available at the J.N. "Ding" Darling National Wildlife Refuge on Sanibel Island and the Elliott Museum in Stuart, Fla. They can be purchased online from the Historical Society of Martin County, which operates the Elliot Museum http://www.hsmc-fl.com.

From the Editor's Desk

Connectivity

By M. Bruce Shields, MD

One of the decided luxuries of retirement is the opportunity to read for pleasure in the middle of the day, which probably doesn't come natural to most of us. It took me quite a while to overcome a sense of decadence and guilt when I sit down in an easy chair with a good book in the middle of a workday. But I'm getting there. My preference for reading is history, with occasional fiction. And I still enjoy scientific literature, although I find that I understand it less and less.

I have recently become fascinated in reading about the controversies among physicists concerning how everything in our universe seems to be connected, from the concept of quantum entanglement, in which paired particles are somehow dependent on each other's behavior; to the string theory, in which particles that are separated by vast distances seem to be influenced by each other. Now believe me, I don't have a clue what all this means, but I vaguely get the idea that everything in the universe is somehow related to and dependent upon everything else.

Certainly, atomic particles are related. If electrons didn't maintain their assigned orbits around their nucleus of protons and neutrons, everything we know would fall apart. The same could be said for our solar system, as the planets maintain their assigned orbits around our sun. We continue to learn how everything in our universe appears to be connected by forces that are still only vaguely understood.

As I have pondered this apparent connectivity of every physical thing in our world, I couldn't help being struck by the parallel relationship within the human race. We are certainly dependent on each other in many ways. I guess this is one of the reasons that I enjoy reading history, in that it gives me a sense of our connectedness throughout all the generations that have gone before us, not only in passing on ever advancing knowledge and technology, but also in the basic hopes and dreams that have been shared by societies down through the ages.

I don't have a clue what all this means, but I vaguely get the idea that everything in the universe is somehow related

Of course, examples of human connectivity closer to home are the relationships we enjoy within our families and close circle of friends. The recent advances in human DNA testing have not only provided a blueprint for the evolution and migration of our race but have allowed each of us to go back through our generations to discover where we have come from. Who can deny the intimate bonds that connect us within our immediate families as we hold in our hearts the memories and lessons of those who have died, support each other within our current family units and plan and hope for the best for our future generations. Much the same can be said of our connections with our dearest friends.

As I have thought about all these human connections, I am reminded of how fortunate you and I have been to enjoy the associations we have experienced in our medical careers and especially as ophthalmologists. Again, there has been the sharing of ever advancing knowledge and technology over the generations, to which we have been privileged to contribute with the hope that it will add to the foundation on which continued advances will be made. On a more personal level, I suspect we can all look back to role models who got us started long ago and to all the priceless friendships we made with colleagues along our professional journey. Now, as we ease into our retirement years, we can all take pride in the new generation of ophthalmologists whom we may have influenced in some way as the connectivity continues.

So, as we sit back in our easy chairs in the middle of the day with a good book in our lap, hopefully without any sense of guilt, maybe we can pause for a moment to reflect on how fortunate we have been to be a part of this continuum of humanity and of our distinguished profession.

P.S. I wrote this before the coronavirus became such a dominant part of our lives, but somehow it seems to make thoughts of human connectivity all the more important (although, for now, we must reach out with our hearts and not our hands). Just today, I saw the following quote by Thomas Merton, which seems to bring our current situation into focus: "You do not need to know precisely what is happening, or exactly where it is all going. What you need is to recognize the possibilities and challenges offered by the present moment, and to embrace them with courage, faith and hope."

Lorenz E. Zimmerman, MD: A Legacy in Ophthalmic Pathology

By: Mary Louise Z. Collins, MD

My father was born on Nov. 15, 1920 at Columbia Hospital in Washington, D.C., and it was his home for more than 80 years of his life. His parents were Swiss and German immigrants; they owned a bakery, and my father was raised in a home above the shop.

The discipline and work ethic instilled in him as a child working in the pastry shop greatly influenced his career in ophthalmic pathology. In fact, he liked to say that he chose a career in medicine because he did not want to work as hard as his parents. Fortunately, he could not shake the work ethic, determination, self-discipline and motivation that were integral portions of his personality and influenced every aspect of his life.

Sports were always a big part of my father's life. He played football and baseball in high school and considered playing beyond. At age 40, he was introduced to tennis. He pursued tennis in the same way that he applied himself to every other interest and became a very competitive player. Much of the later social interaction at ophthalmology meetings revolved around early morning tennis matches with colleagues and friends. Many who admired him called him "Zim."

Physical activity, as a part of a healthy lifestyle, was routine for my father, even before it was in vogue. He was also a great sports fan, and in high school and college was a vendor at the old Griffith Stadium in Washington, D.C., so that he could observe Redskins and Senators games. He was a lifelong Redskins fan, and was known to embarrass my mother at social functions by seeking out a television to watch a game. He even got in trouble along with Bob Ellsworth at Bob's daughter's wedding because they were caught in the bar watching the Redskins-Giants game.

Fortunately for ophthalmology, my father pursued medicine, graduating from George Washington University (Bachelor of Science, 1943 and MD, 1945). He entered the U.S. Army Reserves in 1943 during medical school and because it was wartime, completed medical school in two years. After an internship at Gallinger Memorial Hospital in Washington, D.C., his original interest in the field of internal medicine waned. He stated that he realized that much of internal medicine was an "overlay of psychosomatic medicine and that, if I did not want to see patients whose problems were more in their heads than in their bodies, that I ought to stick with genuine pathology."

Lorenz E. Zimmerman, MD at work at the Armed Forces Institute of Pathology.

After serving as a general medical officer at the Pentagon, he completed his residency in pathology at Walter Reed Hospital in June 1950 and was sent first to Tokyo and then to serve in the Korean War as the pathologist in charge of a mobile medical laboratory.

On return to the states in 1952, he was assigned to the Armed Forces Institute of Pathology (AFIP), rotating through various subspecialty departments until he landed permanently in ophthalmic pathology, one department where he had no experience. In the early 1950s, there were few general pathologists interested in ocular pathology. None with experience were available at the institute.

Many years later, my father wrote: "I thought it was a stroke of real good fortune for me personally, not because I had any preconceived notions or interest in pathology of the eye, but I just knew that it was a gold mine … in the figurative sense ... in terms of having a wealth of material available and having this tremendous inflow of material, not only from

Lorenz E. Zimmerman, MD

military institutions all over the world, but from the civilian sector." Due to the war, many of the civilian institutions that had been doing subspecialty pathology had shut down due to lack of manpower, but he delighted in his inheritance of an instant backlog of 5,000 cases!

My father was fortunate because tackling a backlog of this magnitude in a field he knew little about could have been a disaster. But Helenor Wilder, the ophthalmic pathology technician who led the department during the war, mentored him, introduced him to the key people in academic ophthalmology and arranged for him to be her successor in one of the elite eye pathology clubs. She facilitated his acceptance into the field of ophthalmic pathology at a time when he had never written a paper on the subject. He also considered himself fortunate to have several military ophthalmologists assigned to the Ophthalmic Pathology Department early in his tenure; these men taught him some clinical ophthalmology, as they were all learning eye pathology.

Lorenz E. Zimmerman, MD and his wife, Anastasia on their wedding day.

The backlog of cases meant that, by the time my father rendered a final report, it was often five to six years after the specimen had been submitted. He routinely added a comment at the end of each report stating, "We would appreciate your providing follow-up information." It was in this manner that he developed a wealth of clinicopathologic information with significant follow-up.

My father's willingness and enthusiasm to pursue passionately a subspecialty in pathology, about which he had no prior interest or knowledge, set the stage for a series of more than 50 years of professional contributions to ocular pathology and oncology, including the education of ophthalmologists in eye pathology. His position at the AFIP allowed him to educate residents, fellows and practicing ophthalmologists to varying degrees. He was able to do this because of relationships between the American Registry of Pathology, the American Academy of Ophthalmology, funding through the National Institutes of Health and,

Lorenz E. Zimmerman, MD in Korea as a Pathologist in a mobile army hospital.

Lorenz E. Zimmerman, MD

other national eye societies, and the emphasis that the American Board of Ophthalmology placed on candidates learning eye pathology as part of their education.

His reputation as a teacher was unsurpassed partly due to his qualities of both humility and perfectionism. He demanded even more of himself than he did from his fellows. Dr. Fritz Naumann said of him, "I only recall one situation which would annoy him – if his fellows would not criticize a rehearsal of one of his major lectures. Not criticizing him was interpreted as intellectual laziness and lack of interest in the subject."

His greatest passion was teaching. Daniel Albert, MD observed: "Zim had the ability to look at slides from diseases that had been studied for over a century and make new observations and correlations. Examples of this can be seen in his reports on ocular toxoplasmosis, angle recession glaucoma, phacolytic glaucoma, hemolytic glaucoma, retinocytoma, melanocytoma, juvenile xanthogranuloma and many others. His vast knowledge and insight into the pathology of eye diseases, backed by his total mastery of the basics of pathology, made him a uniquely qualified mentor. This knowledge was combined with his gifts as a clear and precise teacher, patience, intellectual honesty, and humility."

Over the years, his former fellows developed active ophthalmic pathology laboratories at major institutions across the country. My father noted, "My entrance into the field was made comparatively easy by the fact that I hardly had any competitors. There were very, very few people who were well-trained who were in the field of ophthalmic pathology, and really none of them doing ophthalmic pathology on a full-time basis." But my father had the uncommon trait in great men of caring more about the success of his trainees than in his own accomplishments. Fred Jakobiec, MD recalled, "While some leaders in their fields are threatened by the most talented young people they have trained, Zim has exhibited the trait of promoting their careers at every turn."

In his retirement, my father continued to be concerned about the education of ophthalmologists in ophthalmic pathology, especially with the economic realities of healthcare in the 21st century. He was clear about his wish that collaboration between clinicians and pathologists continue in ophthalmology for the benefit of patients.

Zim with son Larry (6th child) at his high school lacrosse game.

In his acceptance speech for the 1999 Helen Keller Award, he stated, "Many highly significant advances and the development of new concepts have evolved merely as a consequence of the comingling of clinicians and pathologists in the retrospective clinicopathologic discussions of cases thoroughly studied at academic centers. It doesn't always require the latest in extremely expensive high-tech equipment and the use of experimental animals to make major advances towards the prevention of blindness." It was his wish that future clinicians continue to be well-educated in ophthalmic pathology by having opportunities to interact with pathologists in efforts to better understand disease processes and improve treatment for our patients.

Although my father's professional life was busy, he was very much a family man. He met my mother in Korea where she was serving as an Army nurse. They reconnected seven years later when both were stationed in Washington, D.C., my father at the Armed Forces Institute of Pathology and my mother at Walter Reed Hospital. They married in 1959 and together raised six children. The last of their six children is my brother Larry who was born in 1967. Larry's birth begins an ironic story of intermixing of professional and personal challenges and contributions in the field of retinoblastoma.

My father's first paper on retinoblastoma was co-authored with Marshall Parks, MD, and was published in 1960. His subsequent landmark work in retinoblastoma became intimately intertwined with his personal life when Dr. Parks diagnosed Larry with bilateral retinoblastoma at age 4 months old. This began a series of ironies and contributions, including several "firsts" in retinoblastoma science, nomenclature and treatment by three generations of the Zimmerman family.

Larry was one of the first babies treated with intra-carotid chemotherapy and subsequently bilateral external beam radiotherapy — both experimental at the time. Larry's daughter, Perry, survived trilateral retinoblastoma — a rare condition even among bilateral RB patients. A second irony involving the Zimmerman retinoblastoma story — the term "trilateral retinoblastoma" was coined by my father, based on basic science research conducted in his laboratory in collaboration with Mark Tso and my brother, Brian, who was a student researcher at the time. Another contribution to the science of retinoblastoma prevention occurred with the birth of Larry's second daughter, Lizzie, who was born via pre-implantation

Lorenz E. Zimmerman, MD

genetic diagnosis (PGD) to prevent the transmission of the RB gene. Her birth marked the first child born via PGD, not just for retinoblastoma, but also for any cancer-related genetic disease.

Through this journey of compiling our family's contributions in the field of retinoblastoma, it has become clear to me that my father's passion for his work was driven not only by his love of science, medicine and pathology but also by his personal challenges in the field. His life's work was devoted to a triad of clinicopathologic correlation, teaching, and research with the hope of giving others what his family had enjoyed — the ability to overcome a potentially fatal illness with useful vision to enjoy all that life has to offer.

My father did enjoy life. He cherished family time with my mother, their children and grandchildren and even their great-grandchildren. He taught all of us the value of hard work and discipline — in physical activity, competition, diet (well, except for the volume of ice cream he could consume) and keeping balance in life. He could be a fierce competitor in sports. He played tennis into his 80s and fast-pitch softball into his 60s. My brother Skip recollects, "to me, he is the greatest third baseman I ever saw play fast-pitch softball. People call him the vacuum cleaner — nothing gets by him."

My father was known to be quirky. Growing up during the Depression caused him to adopt a "waste nothing" mentality. He used to entertain the grandchildren and their friends by eating part of the corncob after he had finished the corn! His soup bowl was mostly filled with bones, which he would enjoy chewing down to the marrow … and as much as he loved the meal, he cherished even more the laughs it generated among the kids. This knack for entertaining grandchildren earned him a name change from "Grandpa" to "Cool Papa."

1996 Zimmerman Family reunion.

He had hobbies, and he pursued them passionately. He could be found almost every morning gardening or tending to the fish pond he dug himself. After his death, my daughter Stacey wrote this about him and my mother: "The most remarkable thing about Nana and Grandpa's hands, though, was what they did for the world. The work of Grandpa's hands in his breakthrough research in pathology is the most obvious, and that humble handshake we see in the old photographs of him accepting prestigious awards is a testament to his self-effacing character. Cool Papa took this beyond his career, however, creating beauty for everyone's enjoyment in his garden and backyard pond".

For my father's work in ophthalmic pathology, he received the highest honors in our field: Jackson Lecture (at age 40), Ernst Jung Prize in Medicine, Donders Medal, Jules Stein Award, one of the 10 Most Influential Ophthalmologists of the 20th Century (ASCRS), Helen Keller Prize for Vision Research (ARVO), Howe Medal (AOS) and the Academy's Laureate Award. Although he was appreciative of all the recognition he received, it is possible that his greatest legacy is not in the science or medical advancements but in the lessons in humility, professionalism and ethical conduct he taught all who connected with him.

In the AJO tribute to him at his 70th birthday, letters from colleagues discussed these personal attributes. An example from Fred Jakobiec, MD, "His personal and professional lives have been a parable of strength, decency, and accomplishment." And, my sister, Barb, "Whether it be an awesome performance as third baseman or winning a tennis match or the honor of another professional award, his humility has always amazed me."

At a time when he received a string of awards, his young granddaughter asked, "Cool Papa, I forgot, what made you so famous?" His answer, "because I'm your grandfather, Lauren." This was Zim as we knew him.

Editor's Note: Mary Louise Z. Collins, MD is an Academy Trustee-at-Large and Chair of the Department of Ophthalmology, Director of Pediatric Ophthalmology and Strabismus, and Director of Resident Education for the Ophthalmology Residency Program at Greater Baltimore Medical Center (GBMC) in Maryland. We are grateful to her and our History of Ophthalmology editor, Daniel M. Albert, MD, MS, and his editorial assistant, Ms. Jane Shull, for contributing this article to Scope.

Claes H. Dohlman, MD, PhD — A Leader in American Ophthalmology and Proud Son of Sweden

By Henrik Dohlman, PhD

My father, Claes Henrik Dohlman, is a Swedish-born ophthalmologist and a founder of the cornea subspecialty.

For more than 60 years he has been affiliated with the Department of Ophthalmology at Harvard Medical School, and for 15 of those years served as department chair and chief of ophthalmology at the Massachusetts Eye and Ear Infirmary. Prior to becoming chair, he established the world's first cornea service, something that today is ubiquitous among U.S. eye departments. He is well known for his contributions to corneal biochemistry (1950s), surgical practice (1960s), teaching and administration (1970 and 1980s) and the development of a practical artificial cornea and its postoperative management (since the early 1990s) – with over 15,000 devices implanted worldwide.

My father performed surgery well into his ninth decade, and at 97, he continues to train young scientists, develop new technologies and produce innovative treatments for the most hopeless cases of corneal impairment. Most recently, his efforts to prevent complications led to the identification of a novel mechanism of glaucoma. His innovations have restored vision to thousands, and revenues from these inventions have gone entirely to support new research and education.

My father is particularly proud of the individuals he has trained and mentored over the past six decades. These include more than 200 cornea fellows (clinical and research), nearly half of whom are now full professors. But how did he get his start? Who mentored the mentor? His path to a legendary career in ophthalmic science included work with some legendary academic researchers including Erik Jorpes, MD, Edward Maumenee, MD, Jonas Friedenwald, MD, Charles Schepens, MD and Endre Balazs, MD, to name a few.

The following reminiscences come from occasional conversations with my father at home, and highlight three physician-scientists who had a unique impact on his professional growth and development.

Claes Dohlman MD, PhD.

FIRST: GÖSTA DOHLMAN

My father's father ("Farfar" in Swedish), Gösta Dohlman, was professor and chair of ENT at University of Lund. He had gained early recognition for his research discoveries working with Róbert Bárány at Uppsala University in the 1920s.

Bárány had previously received the Nobel Prize in 1914 for his work on the vestibular apparatus. My Farfar was his only doctoral student "Medicine Doktor", working on fluid flow in the semicircular canals and its influence on the cupula. Although he published just four papers on the topic, the impact of his discoveries earned him a professorship at University of Lund. It was not without some setbacks along the way, however. As my father recalls, "When I was 3 or 4 years old, I wanted to pet the rabbits that he had been working on in the laboratory. He had operated on them for hours and experimented with them for months. I took it upon myself to open their cages so they could enjoy a bit of the outdoors, and they quickly hopped away into the countryside," putting an end to the experiments.

My father enrolled in medical school in 1943, with his own father as one of the professors. While in medical school at Lund, he was drawn to biochemistry and was chosen to be a teaching

assistant setting up experiments for the medical students and administering examinations.

"Back then it took seven or eight years to get an MD, and consisted of often needless accumulation of trivial knowledge. My career path was greatly influenced by my good friends since grade school Arvid Carlsson (who later won the Nobel Prize for the discovery of dopamine) and David Ingvar (who went on to become a prominent clinical neurophysiologist). Both were heading for medicine from the very start," he recollected.

"After medical school, for my residency, my father suggested I should be an ENT surgeon (as he was), but it was the only time I dared to object. I had several friends in the ophthalmology department, and I found the eye to be a particularly interesting organ, with neurology in the back, transparent connective tissue in the front and the optics of the lens. I approached Professor Sven Larsson, who was very popular among the students. He agreed with some enthusiasm and I started in 1950.

"However, soon after I started Larsson had a heart attack, which according to my friends was so severe they had never seen anybody survive one like it. After that, he promised to be 'the laziest professor in Sweden," and he kept that promise! But that was fine with us because we took care of the work ourselves. At that time there were only four salaried positions in the department, and in our spare time we could do some research in the basement, on corneal edema, which eventually became one of my strongest lines of investigation.

"In 1952, I had eight months before my next appointment and thought I should break out and see something new. I asked Ernst Bárány (the ophthalmologist son of Róbert Bárány) who was brilliant, and worked on glaucoma,

In 1952, my parents Carin and Claes touring the U.S. Capitol during a fellowship year at the Wilmer Institute at Johns Hopkins Hospital.

about what to do. In retrospect I should have applied to work with him, but I was fixated on the cornea because of some histochemical interest I had. I wanted to go the U.S. and asked Barany, 'Who should I go to?' He recommended Jonas Friedenwald at Johns Hopkins University in Baltimore. I wrote to him, and he agreed to take me on at a salary of $250 a month.

"Before traveling we had been instructed to go to the U.S. consulate in Gothenburg to get a student visa. The man at the desk looked at our application and said, 'A student visa? Oh no Dr. Dohlman, take this. It is a green card, it is much better.' This happened in 1952, and then again in 1958. In those days, there was a severe bias against the Eastern and Southern Europeans, so there were generous allotments to other countries including Sweden. The consulate had stacks of green cards with nobody to take them, so they were happy to give them to us."

SECOND: JONAS FRIEDENWALD

"We sailed (in 1952) on the Queen Mary from Southampton, England to New York City through a February storm. We lived in Baltimore for a year and a half in a bungalow, a shack really, up on Joppa Road.

"Friedenwald suggested that I work out a histochemical method for organic sulfatases (which act on keratan sulfate, chondroitin sulfate, and other glycosaminoglycans) in the eye. He had done some experiments with lead precipitation, using heparin as a substrate that bound to proteoglycans. Proteoglycans were important in the cornea and also in the kidney. So I worked on that for a year but could

not get any free sulfate to prove that the assay worked. I then realized this was a histochemical artifact and that I was staining lead phosphate and not lead sulfate. So, I was measuring the wrong enzyme! It took me a year to find this pitfall in histochemistry. I was a bit disappointed at the time, but it was very educational and set my own ambitions for the future.

"Friedenwald was an unusual man, a brilliant, but shy and introverted scholar. Despite his prominence, he was never promoted beyond associate professor and had a salary of only $4,000. He had a private practice with his father in the morning, research at the Wilmer Institute in the afternoons, and in the evenings he was home reading. His laboratory was miserable by modern standards, but he himself was quite an inspiration, and it was a very educational time for me. It was an entirely new world that opened up.

"After that, I went up to Boston for 8 months in 1953 and worked at the old Retina Foundation (now Schepens Eye Research Institute) with Endre Balazs (who later purified and commercialized the natural lubricant hyaluronic acid) on the biochemistry of the cornea, I learned a bit and had a good paper there. Charles Schepens encouraged me to balance patient care and research. Then I thought it was time to go home with (third child) Ebba coming and continue my career there in Sweden."

Back home, my father continued his residency in ophthalmology, but had the opportunity to also continue his research on the metabolism of corneal proteoglycans. During that time, in 1956, he was drafted to serve as a medical officer to Oskar-Fredriksborg, a coastal artillery station outside of Stockholm, which he often described as "a dilapidated fortress, with a few rusty cannons, at the entrance of the Stockholm archipelago." As my father tells it, the famous German Field Marshal Moltke is said to have smiled only twice in his life. First when his mother in-law died and again when he surveyed the Swedish defenses at Oskar-Fredriksborg!

In 1939, my father at 17, with my grandfather and his whippet "Jack". As my father describes, "we were most likely discussing one of many middling report cards from school!"

THIRD: ERIK JORPES

"At Oskar-Fredriksborg there were two physicians on duty, with nothing to do, so we divided the days, 24 hours on and 24 hours off. I traveled into town on a boat and worked for 24 hours at a stretch in Erik Jorpes' biochemistry department at the Karolinska Institute. After a long day in the lab I returned to the fort and slept on the job. This was the time when 35S radioisotopes had just arrived, and I realized what had previously taken years could now be done in minutes. One time in the laboratory I was centrifuging samples at 3 in the morning and got so sleepy I thought I should take a rest. There was only one sofa in the entire institution and that was in Jorpes' inner sanctum, in his office. You can imagine what happened next. I woke up the next morning with Jorpes' icy blue eyes staring down at me. But he thought in his skewed mind that this was a sign of devotion to science and came back to that incident repeatedly in promoting me."

"Jorpes was a political radical, having grown up on the island of Åland, between Sweden and Finland in very poor circumstances, which marked him for life. He was a medical student in Helsinki in 1917, and when the Russian Revolution started, he became the leader (with Kuusinen) of the Finnish Communist party, rising up against the government. He was at the front of the barricades of Hälsingfors, fearless, in a very bloody and serious revolution. But the Germans were called in and crushed the rebellion, making short shrift of the communists.

"Jorpes fled to Russia and found himself sitting in a muddy border village waiting for his great return as president of Finland, which didn't occur. With a death sentence on his head, he smuggled himself across the border and made it to Sweden. He went up to the faculty of the Karolinska Institute and announced his grand return. After some hesitation, he was allowed to start as a lab technician but quickly rose through the ranks to become Chair of department. He clarified the structure of heparin, worked on insulin, made a lot of money and became a capitalist (Jorpes studied the preparation of insulin at the Connaught Laboratories in Toronto, under the guidance of the Nobel-

winning biochemists Frederick Banting and John Macleod. After returning, he launched the production of insulin by the Swedish pharmaceutical company Vitrum.

"The royalties made him wealthy, but rather than keep the money for himself, he supported his department. To think if they had caught him he would have arrived in Sweden 'a head shorter'. But he made it, and as far as I know he continued to have a death sentence on his head, which not many department chairs have!

"My interest in proteoglycans continued as a PhD student at Lund, working in Jorpes' Biochemistry Department at Karolinska and later with Professors Lennart Rodén, Harry Boström, Sven Gardell and Torvard Laurent as preceptors. Rodén helped me the most in practical terms. He later moved to Alabama in the U.S.

"Laurent was a physical chemist of the highest caliber, and a friend from my time in Boston. Boström was a clinician interested in the metabolism of proteoglycans and later became Professor of Internal Medicine and Dean at University of Uppsala. Working in the evenings back in Lund, sometimes in Sune Bergström's lab, I later found the sulfatases by using chemical isotopes instead of crude histochemical techniques. Bergström was mostly interested in prostaglandins, for which he later won the Nobel Prize, but I was not part of that team, and he showed no interest in me."

After that, my father returned to doing translational research in Stockholm and finalizing his thesis, which was presented at University of Lund in 1958. That same year there was a career-changing opportunity; he was recruited back to Boston at the invitation of Balazs, Schepens and Edwin Dunphy, then chief of ophthalmology at Mass Eye and Ear. This move would prove permanent. He took a faculty position at Harvard Medical School, first as an instructor (1961), then assistant professor (1968), associate professor (1969), professor (1973), chair (1974-1989) and professor emeritus (1993).

In 2002, celebrating my father's 80th birthday, at our family's summer home in Sweden.

For 16 years my parents lived in suburban Arlington, first with three children. Soon after, there were six. Those were magical years living on Pleasant Street in a converted carriage house by Spy Pond, and they were followed by 45 years in Weston. Most summers we had family reunions at our ancestral family home at a small farm in Sweden. In 2019, the family gathered there to honor Mamma Carin, who died at age 91 from complications of Parkinson's disease.

What did my father learn from his three most influential mentors? As he puts it, "They advised me to focus, focus and focus, respectively — although I didn't always follow their advice." Nevertheless, my father's career accelerated after 1958, and there have been many laurels along the way, including the Friedenwald Award (1971), Castroviejo Medal (1981), ASCRS Ophthalmology Hall of Fame (2004), Laureate Award of the American Academy of Ophthalmology (2007), Helen Keller Award (2010) and the Gullstrand Medal (2012) which is given once per decade by the Swedish Medical Society.

At the age of 96, he was conferred an honorary doctorate and delivered the commencement address at the University of Montreal. He could well hold the record as the oldest graduation speaker in history! He has continued to champion academic medicine and has authored almost 400 articles, including more than 60 after turning 90.

Most important is his legacy of mentorship. It is important to remember that the many residents and fellows who trained with my father are also part of an eclectic scientific family tree, one that includes the senior Professor Dohlman, Friedenwald, Jorpes and many others who have helped to shape the discipline of ophthalmology.

Editor's Note: Henrik Dohlman, PhD, is Claes H. Dohlman's fourth child and is the Sanford Steelman Distinguished Professor and chair of pharmacology at the University of North Carolina. We are grateful to him, and our History of Ophthalmology editor, Daniel M. Albert, MD, MS, and his editorial assistant, Ms. Jane Shull, for contributing this article to Scope.

Ergonomics is Everything!

By: Samuel Masket, MD

At an early stage of my career, I performed and taught anterior segment surgery — particularly as it related to cataract. In teaching, I always stressed the importance of surgical ergonomics: positioning the patient in a way that maximizes their comfort and aids the surgeon.

Proper positioning of the recumbent patient enhances surgical exposure and helps alleviate patient anxiety; both make the surgeon's task easier. If the surgical experience is good for the patient, it is likely to be good for the surgeon.

I often said to the learner, "Ergonomics is everything." How correct I was. But in retrospect, how little I knew about the subject. I neglected the musculoskeletal impact of practicing ophthalmology and ophthalmic surgery, and the central role of ergonomics. Ergonomics (from the Greek words "ergos" and "nomos," which respectively mean "to work" and "study of") is far more significant and encompassing than simply positioning a patient for surgery.

The Board of Certification for Professional Ergonomists (BCPE) defines ergonomics as "a body of knowledge about human abilities, human limitations and human characteristics that are relevant to design. Ergonomic design is the application of this body of knowledge to the design of tools, machines, systems, tasks, jobs and environments for safe, comfortable and effective human use."

Most ophthalmic diagnostic and surgical equipment has been designed without consideration for the comfort of ophthalmologists' necks, backs, shoulders, arms, wrists and hands. Compared with family medicine practitioners, ophthalmologists are more than twice as likely to have neck pain, more than 2.5 times as likely to have hand/wrist pain and 3 times as likely to have lower back pain[1]. These disconcerting figures are likely higher in female than male ophthalmologists due to differences in physical stature and other factors. In a 2005 survey of roughly 700 ophthalmologists, 52% self-reported neck, back or arm pain, and 15% sensed that their work was affected by these symptoms[2]. Indeed, across multiple studies, at least 50% of ophthalmologists report chronic back and neck pain.

Moreover, the incidence of symptoms increases with work volume and time. This is of considerable relevance to senior ophthalmologists (SOs), whose careers may be affected over time. Near the end of my surgical career, I experienced neck pain and finger numbness and tingling upon head turning. An MRI (Figure 1) confirmed disc and bone changes, along with moderate to severe multilevel cervical spine stenosis. Remarkably, the symptoms disappeared shortly after I stopped performing surgery. Other colleagues have related their stories in a variety of forums, most commonly in *EyeNet* magazine. In a SO-sponsored Learning Lounge session on Ergonomics at AAO 2019 in San Francisco, the prolific anterior segment surgeon Steven Safran, MD, described his experience with horrific work-related neck pain that ultimately required cervical fusion (Figure 2).

Suffice it to say that our profession places us at great risk for musculoskeletal disorders (MSDs) later in life. However, the subject should be of even greater significance to our young colleagues. One might hope that increased attention to these concerns could prevent long-term physical harm and MSDs, allowing careers to be prolonged as desired rather than limited by physical ailment.

The Academy has had a long-term interest in physician wellness and ergonomics, particularly with regards to MSDs in ophthalmologists. Earlier, an AAO Task Force on Ergonomics was formed and led by Jeffrey L. Marks, MD, a vitreo-retinal surgeon at the Lahey Hospital & Medical Center who has published on the subject[3] and has spearheaded the Academy's efforts in this arena. A number of articles have appeared in *EyeNet*

Figure 1. This MRI (lateral view) reveals. significant stenosis in the lower cervical spine.

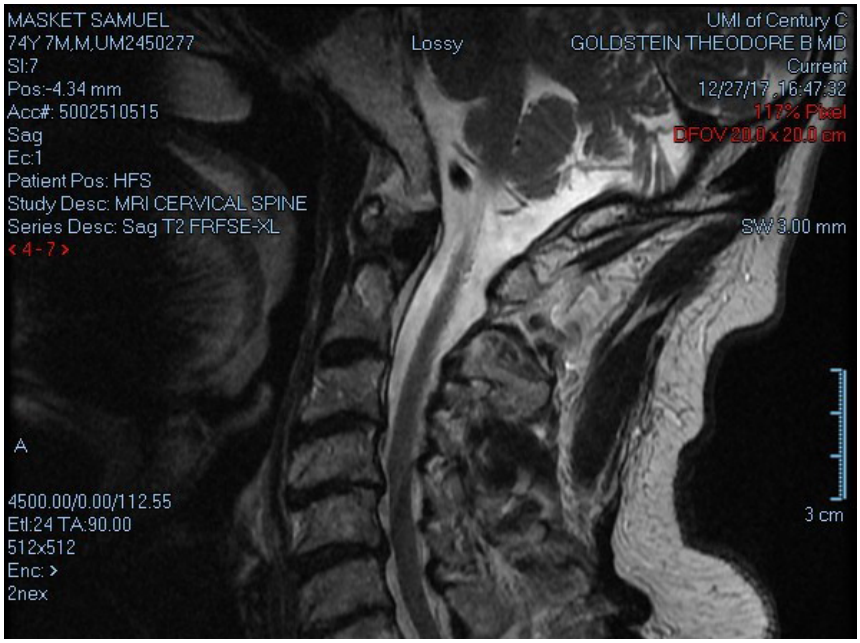

Image courtesy of Samuel Masket, MD

and there are annual courses and lectures on the subject.

That said, the message does not appear to have reached a sufficient base of the AAO membership. It appears that physicians have little interest in the matter until they are symptomatic. The good news is that there are now alternatives to traditional operating microscopes that stress our necks and backs. Industry, in general, seems motivated to develop ergonomic surgical tools to help reduce the likelihood of MSDs.

Awareness of the potential for physical harm is a good starting point for prevention. In a 2009 *EyeNet* article, contributing writer Linda Roach consulted with Academy members Jeffrey Marx, MD, Wayne Fung, MD, and Martin Wand, MD, to offer advice on risk factors for — and strategies to prevent — work-related injuries. In addition to suggesting stretching and motion exercises, the article proposed seven risk factors and potential solutions for MSDs in ophthalmologists, as noted below:

SLIT LAMP

Stretching one's neck into extension to reach the patient can be very stressful to the neck. Colleagues have modified slit lamp tables (Figure 3) to make it easier to reach the patient. Steve Safran, MD, has increased the length of the patient head strap to bring the patient and examiner closer to one another.

OPERATING MICROSCOPE

Once again, stretching the neck and working in awkward positions can have deleterious effects on the entire spinal column, from neck to lower back (Figure 4). Traditional remedies include oculars that can be reclined at variable angles. Alternatively, the patient's head can be turned toward the surgeon and the microscope further tilted to reduce neck strain during temporally oriented surgery[4]. More recently, there is interest in digital operating microscopes that don't require viewing through fixed oculars; rather, the surgeon views a large freestanding screen while wearing 3D glasses in what is called "heads up" surgery (Figure 5)[5]. Moreover, digital surgical microscope substitutes are now available with a virtual reality (VR) headset, freeing the surgeon from fixed oculars while not requiring surgical viewing of a remote screen.

COMPUTER MONITOR SCREENS

The physician's neck and shoulders are potentially challenged while working at computer terminals. This effect is exacerbated while wearing bifocal spectacles, as they cause the user to extend their neck to bring the screen into the near-vision "sweet spot." Ideally, one could use single-vision glasses aimed for computer distance or bifocals with the upper segment set for computer viewing.

IMPROPERLY ADJUSTED CHAIRS AND TABLES IN THE OPERATING ROOM

Depending on the height and body habitus of the surgeon and patient, the surgeon may sit in awkward positions that primarily stress their back muscles but may also stress their neck and shoulders. This is particularly true for temporally oriented procedures. During my surgical career, I always set the gurney, chair and microscope to match the patient's anatomy to my position of comfort prior to the prep and drape. While those maneuvers added a few minutes to the surgery, I always believed that it was time well spent.

MICROSCOPE AND MACHINE PEDALS

Again depending on the surgeon's height and habits, it may be difficult to arrange the operating pedals in comfortable positions when operating temporally. This is most stressful on the lower

Figure 2. This X-ray (lateral view) reveals the "surgical hardware" after cervical fusion in an ophthalmologist with severe neck pain.

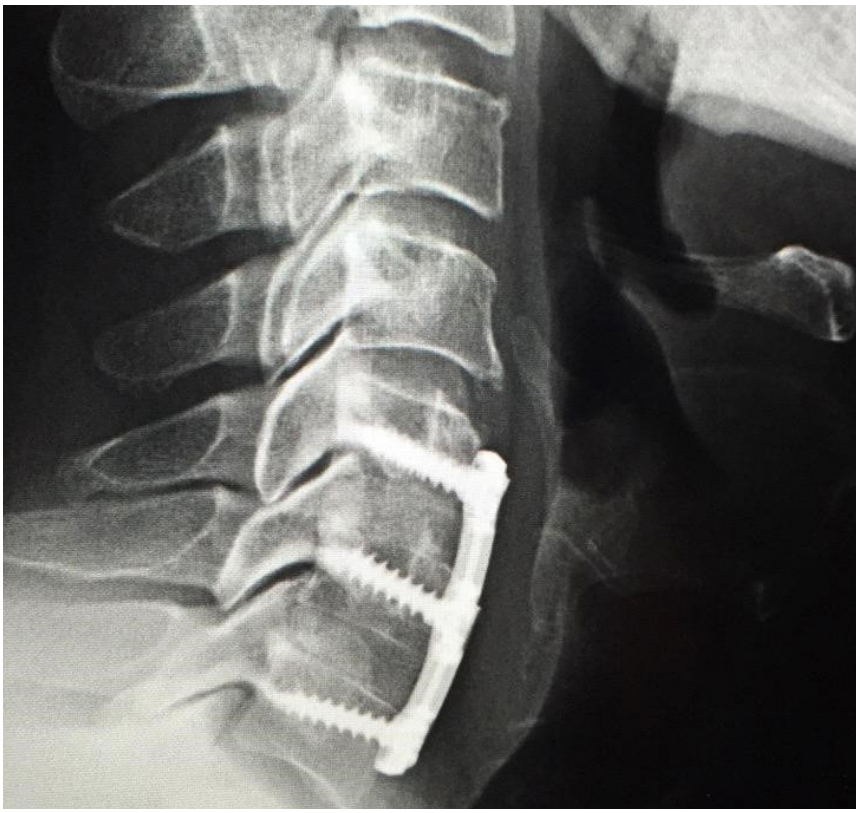

Image courtesy of Steven Safran, MD

back. Where possible, surgeons can evaluate several operating room table designs to best fit their anatomy. Some foot pedals have variable tilts or may be elevated on lifts as necessary.

COMPUTER KEYBOARDS

The wrists and forearms are particularly vulnerable to fatigue and damage if the keyboard and mouse are not placed at the proper height and working distance.

EXTERNAL CONTACT STRESS

Working with a hyperextended wrist can stress tendons and induce pain, numbing or tingling when tendons are stressed when working with a hyperextended wrist. This may also occur if the hands, wrists or arms come into prolonged contact with edges of the tables or other equipment. Padding and proper positioning may obviate these concerns.

Image courtesy of Steven Safran, MD

Figure 3. The custom design of this shortened slit-lamp table allows the examiner to get closer to the patient, reducing stress on the neck.

Figure 4. Poor posture at the operating microscope can affect the neck and spinal column.

In addition to the risk factors listed above, ophthalmologists place their bodies in uncomfortable, strenuous and risky positions when performing other tasks such as indirect ophthalmoscopy with the patient erect (Figure 6), minor surgical procedures and contact lens exams at the slit lamp and office-based intraocular injections. Moreover, training new surgeons at the microscope can place severe physical stress on the observer or supervisor.

There is a shifting demographic among AAO members, as we note a "greying" of the Academy along with the aging of physicians and society in general. Consider the following:

- Academy SOs older than 60 years account for approximately 40% of membership;
- About 25% of U.S. physicians are 65 years old or older.
- Ophthalmologists are working longer than ever and adhering to the concept that "60 is the new 40." For that reason, among others, physical health and physician wellbeing are of paramount importance.

The good news is that increased awareness of the impact and incidence of MSDs on ophthalmologists has led to action across several fronts. Industry has demonstrated keen interest in the subject by redesigning workspace products, such as improved stools, and by developing tools for "heads up" surgery. New microscope concepts can be expected to help save the necks and backs of eye surgeons.

Moreover, the Academy has shown interest in resurrecting the now-inactive Ergonomics Task Force and there are plans for the SO and Young Ophthalmologist (YO) Committees to collaborate on a variety of seminars and educational opportunities.

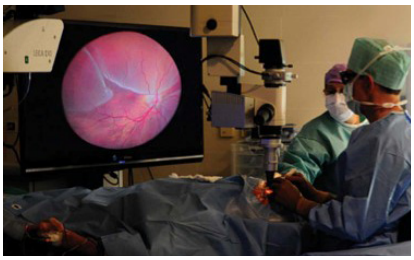

Figure 5. During a "heads-up" surgery, a vitreoretinal surgeon views the screen while wearing 3D glasses rather than viewing through a microscope. This allows for an ideal operating posture (5)

Figure 6. Indirect ophthalmoscopy with the patient erect is particularly onerous to the physician's back, neck, arms and hands.

Additionally, ophthalmology residency programs through the Association of University Professors of Ophthalmology (AUPO) can consider adding ergonomic and wellness concerns to the teaching curriculum. There is a clear need to involve young members of the Academy in the development of a comprehensive ergonomic program that will benefit all age groups.

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The Present Crises in Confidence With Medicine

By Alfredo A. Sadun, MD, PhD

Physicians in the U.S. are going through a trying time. We see a great deal of transition in workstyle, in culture and in our medicine zeitgeist. The corporatization of medicine has generated a tidal wave of frustration.

We are witnessing a great shift in our culture further distancing us from the classical doctor-patient relationship to that of being part of a business and even more so, of being an employee. We sense that we have become a small cog in a very big machine. Changes in technology have also impacted how we think as well as practice medicine.

I have a particular perspective as a neuro-ophthalmologist who mourns our lost habit of analytical thinking. It's much easier to just order more tests. We are constantly reminded that time is money, and medical organizations, whether HMOs, hospital based or academics, put a premium on throughput. Efficiency comes at many costs, including that doctors should now minimize socializing with the patient.

Overshadowing all this is the big issue of electronic medical records (EMR). EMRs are advertised as optimizing patient care, providing efficiency, screening medical oversights and mistakes and giving us data for epidemiology.

Perhaps. But in fact, the cynical reality is that EMRs were designed mainly for one thing: the maximization of billing. We, as physicians feel this cynicism every time we fail to look at our patients due to our preoccupation with the computer screen and the EMR. Our differential diagnosis, once a complicated calculus and an expression of the art of considering the common, the severe and the urgent, is now largely driven by what bills best.

How did we get here? What lessons can we take from physicians from the past? What about other health care systems in other countries? How can we best cope? And perhaps as important, can we take some refuge in humor?

These and similar questions have been addressed by recently published books that converge on these topics, but could not be more different in style, content and tone.

Alfredo A. Sadun, MD, PhD, visits the remains of the ancient Greek temple/hospital of Asclepius (circa 500 BC) in the ancient city of Troezen located in the Northeastern Peloponnese, Greece.

THIS IS GOING TO HURT: THE SECRET DIARY OF A JUNIOR DOCTOR

By Adam Kay (2019)

This is an international best-seller that describes the life of Adam Kay as he was training and working in the United Kingdom as a house staff officer. The book is hilarious. We learn about the trials of young doctors in training though, in this case, it's through the lens of socialized medicine in the U.K.: the National Health Service, or NHS. It is largely about how big modern medicine and health care delivery systems are and how small a doctor can feel. Much of this is the same in the U.S.

The book is a journal. His diary entries were sometimes very short, but very comical too. Shocking, brutal and often sad, but almost always funny. You follow his life along through his clinical training. Despite the side-splitting humor, you can feel his slow descent into burnout. Fortunately, just when you think that his writing is too bitter, his humor saves it all, for a time. Consider this quote from Kay when he was asked what is it like to go to medical school and then clinical training.

"So I told them the truth: the hours are terrible, the pay is terrible, the conditions are terrible; you're underappreciated, unsupported, disrespected and frequently physically endangered. But there's no better job in the world."

The Present Crises in Confidence With Medicine

Kay's book provides insights into how the U.K.'s NHS works in showing us what the life of a junior doctor there is like. It describes a life not dissimilar to that of what interns, residents and fellows in the U.S. go through. In the U.K., training is probably even tougher. After all, our U.S.-based Accreditation Council for Graduate Medical Education (ACGME) has made a number of changes following the famous Libby Zion legal case, whereby a civil lawsuit was made against a New York hospital blaming a patient's death on overworked residents.

In the interest of full disclosure, I was privileged and honored to work for the ACGME as the chair of the Resident Review Committee (RRC) for several years. Our ACGME has addressed the stresses and work hours of interns and residents. As physicians know, the ACGME has limited work hours (to about 60 hours/week) and limited continuous work without sleep for U.S. residents in training. In the U.K., the NHS has not yet done as much for junior doctors. Which brings us to one of the main reasons Kay wrote the book.

It was in response to the attitude of Jeremey Hunt, who was, at the time, the Health Secretary for the U.K. Hunt claimed that physicians in the NHS were "greedy" and did not have the right to complain about their terrible work conditions and hours (many were working 90 hours/week). Kay uses the book as a form of rebuttal. (More will be said about Kay's important points after these book reviews.)

The specific stories of Kay as a house officer in ob/gyn lends the book credulity and the sense that it's only a little exaggerated. Kay's book, for me, has a sad conclusion as he ends his medical career and moves on to become a comedian, TV writer and producer. At least he kept some of his skillset.

THE RHETORIC OF MEDICINE: LESSONS ON PROFESSIONALISM FROM ANCIENT GREECE

By Nigel Nicholson and Nathan R. Selden (2020)

Before reflecting on this book's content, it's important to understand something about the two authors. They are scholars.

Evidence-based medicine had a form of its own, in ancient Greece, and it pitched itself against alternative medical approaches

Nicholson is a classics professor and an expert in ancient Greece. Selden is a neurosurgeon and past president of the Congress of Neurological Surgeons. Their partnership in this enterprise is, in itself, remarkable.

What these two attempt to do is address the zeitgeist of medicine from ancient times by telling us stories from antiquity. They use the term rhetoric to use this process in consideration of the social and ethical issues experienced by ancient Greek physicians and patients. Hence, we can compare and contrast these issues to those confronting modern physicians and patients. Particularly interesting is the common perspective of needing to support physician wellness, then as now.

This book occasionally drifts to the pompous and pedantic. That might be expected, as the authors are both academics and intellectuals. They support every argument with evidence, and often do so repetitively. It is good scholarship, but sometimes a bit tedious. Their main goal was to examine how physicians worked and competed in the pre- and early-classical Greek periods of about 550 to 400 BC. This was the period that conceived the Hippocratic Oath. The authors felt that in examining this time and place, we might gain instruction for modern medicine as practiced in the West.

Jumping to the meat of their issues, they tell us about how some ancient Greek physicians worked primarily for money and status. Even in ancient Greece, there were physicians who saw medicine as a business and used their advantage for personal gain. These physicians were also accused of selling snake oils, literally and figuratively.

Against this, many other physicians made the case for professionalism. Ethics, values, and medical codes, were argued over and prescribed to the profession. This led to competition between groups, as well as collaborations that might have been to help restrict trade as much as providing for the maintenance of ethical conduct. Evidence-based medicine had a form of its own, in ancient Greece, and it pitched itself against alternative medical approaches, even then. Related issues included the necessity for teaching and mentoring (and the expectation that students show respect and gratitude to those that supervised their professional development). To what extent did the physician act on his own, or within the context of his profession and the needs of his colleagues?

This was also a time when Greek culture was obsessed with athletics. Consequently, the physician was regarded as an important resource in helping the athlete with information regarding training, diet and the treatment of injuries. It was interesting to me to see that even then there was competition between physicians and athletic trainers.

Their rhetorical approach demonstrated that the problems we are

The Present Crises in Confidence With Medicine

confronting in modern American medicine are not so new. I was amazed to read several excerpts from ancient Greek physicians that I regard as lessons. As an example, the ancients taught the value of removing the physician as a participant when writing the medical note by writing in the third and not the first person. Third-person clinical notes lessened the physician's emotional ownership and was designed to reduce physician burnout. This was recommended 2,500 years ago!

One interesting and scholarly point of the professors, is that ancient Greek doctors found themselves at a crossroads. They were about to break from their version of superstition-laden ancient medicine to their form of modern medicine. Likewise, we are at a crossroads with the introduction of modern technology and new ways of delivering medicine.

At the core then, as now, was the question of a physician's identity. How did a physician meet the demands and needs of his patients, of society, and of his teachers, against personal needs that included money, status, health and the challenges of aging?

Remarkably, the professors did not address these deep and complex issues on a meta level. Rather, they examined the mundane, everyday practices of medicine. That made the book and the ancient Greek zeitgeist, much more approachable.

MAN'S 4TH BEST HOSPITAL
By Samuel Shem (2019)

For young doctors of my generation, Samuel Shem's (pen name of Stephen Bergman) "The House of God," was a watershed event.

"The House of God" came out during my internship in medicine in 1978. I found myself shaken to the core by this book. I couldn't put it down, thus spoiling my only vacation as an intern. Though the book was satire, it touched on many truths, and I was frustrated by the same sorts of institutional absurdities. "The House of God" revealed to me some personal rage I didn't know I had.

This is a story, like the first, of institutional evils. Shem points out and condemns corporate greed, bureaucratic idiocy, branding and the newest disaster in medicine, the EMR

Shem almost did it again. In his new novel, he picks up the story 40 years later with the same characters and the same outrageous satire. This time, the title character Basch and his colleagues are late in their careers as physicians. They are brought back together to work in another medical center — formerly known as MBH (not MGH), which formerly stood for Man's Best Hospital. But now, national rankings are everything and it has fallen to fourth.

This is a story, like the first, of institutional evils. Shem points out and condemns corporate greed, bureaucratic idiocy, branding and the newest disaster in medicine, the EMR. While the interns and residents of "The House of God" were powerless, the attendings of "Man's 4th Best Hospital," seem less sympathetic. But it's still funny and we are still outraged by how politics, corporate values and administrative stupidity have both hindered the efficient application of medicine and also undermined compassion and the individual physician's autonomy.

By now, you will recognize these themes from the first two books I've reviewed. Only Shem takes everything too far. Sometimes it works, and you laugh. Other times, it's just silly. Shem shows particular sensitivity to the subject of physician health and burnout. When he's funny, we feel a little relief from our own miseries. But at other times, he's preaching a return to medical ethics, values, compassion and sensibility that we know is improbable. One of his medical students is a computer whiz who manages to disable the entire EMR system. Not only do the patients get better, and the physicians feel better off, but productivity and even billing improves. Eventually, of course, the EMR system is fixed and everything returns to the abysmal state of serving only one real end: The maximization of profit for the hospital system. You laugh and you cry.

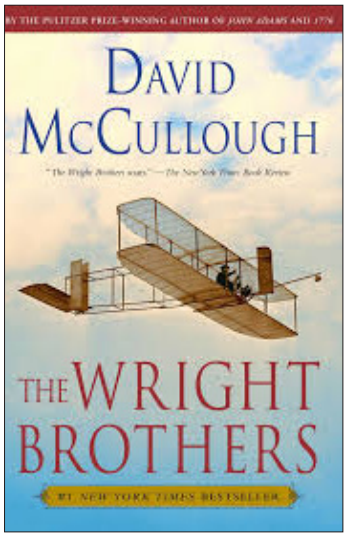
Taken together these three books explore identical issues but from very different points of view. Like the authors, we fear these changes, we try to avoid burnout, and we mourn the loss of humanity in medicine. We physicians must transition to the new way medicine is practiced in the U.S., and in that crossing find our North Star again. We must learn to cope with EMRs, with the corporatization of medicine and with all the other issues of health care delivery as it is today. All the while, we must keep our old values of prioritizing patient care, compassion and taking pride in our own work and profession.

So, we struggle to find a new compass for these uncharted waters, pointing us to the central value, which remains the preciousness of life. It is a challenge. For me, humor, as exemplified by these books, is part of the solution.

What We're Reading This Spring 2020

Book Review Editor, Thomas S. Harbin, MD, MBA

Senior ophthalmologists share the best of what they're reading this Spring. Share what you're reading and send your review to scope@aao.org.



The Wright Brothers
by David McCullough
Reviewed by: John R. Stechschulte, MD

This history book tells the story of two brothers who dreamed to fly like the birds. In accomplishing manned flight, they taught the nation much about aviation while fascinating the entire world.

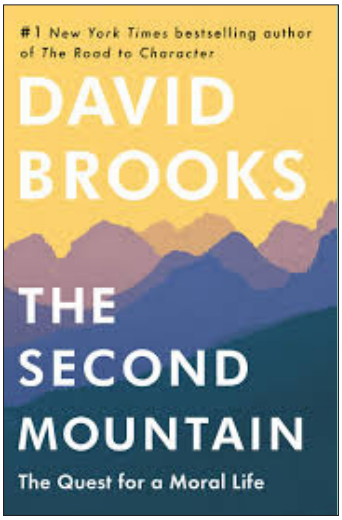
I enjoyed the audiobook, recorded by the author David McCullough, because it was like listening to my grandfather tell a story. His voice, though raspy, made the pronunciation of numerous early French aviators' names very distinctive.

Wilbur and Orville were inseparable brothers with fairly unremarkable personalities. Yet McCullough's descriptions of their family, home and bicycle shop leads the reader to understand how their quiet, intense single-mindedness and humility led them to succeed. They went to windy Kitty Hawk, NC, to develop gliders and then build a biplane. They were frequently back in their hometown of Dayton, Ohio to redesign and sometimes rebuild damaged plane parts. Their love of reading, tinkering and experimentation led them to build and pilot the first powered machine. They were courageous yet cautious. Until their last few flights, they would never travel up in the plane together but instead take turns transporting other passengers into the sky.

The thread that connected the Wright brothers' love of bicycles to the construction of a plane was the fundamental principle of maintaining equilibrium or balance. The book doesn't dig deeply into the engineering and aerodynamic principles of flight, but the reader is given a description of wing warping, which the Wrights learned from watching giant seabirds soar over the beach. Wing warping was a precursor to the aileron, a hinged panel on the wing's edge. Once the brothers gained steady balance of a glider, they felt confident that they would soon conquer sustained flight. They only needed to add power, which proved to be a mere 12 horsepower engine.

Their love of reading, tinkering and experimentation led them to build and pilot the first powered machine.

The Wright brothers repeatedly offered their technology to the U.S. government. But the government declined their offers because the flights had not been witnessed by the U.S. military or large audiences. Local newspapers didn't report the Wrights' accomplishments. Ultimately the Smithsonian Institute was embarrassed, as it had experimented with expensive, government-funded flights that flopped into the Potomac River after being launched in Washington. But the French government and early French aviators cooperated with the brothers. Wilbur demonstrated many flights near Paris in front of famous Europeans, including kings and queens. His record-breaking flights in France lead to a hero's welcome back in America.



The Second Mountain: The Quest for a Moral Life
By David Brooks
Reviewed by: M. Bruce Shields, MD

A senior person reading this book may find the concept of a "second mountain" to be quite familiar. It is, as author David Brooks describes it, the journey we take after reaching the top of one mountain and finding the view less than satisfying. Our first mountain, or first half of life, includes years devoted to education, career, family and our quest for success and happiness. Of course, there is nothing wrong with that. In fact, the most fulfilled people are those whose lives begin with a single mountain. But there comes a time when other centeredness becomes more important than

What We're Reading

self-centeredness, and interdependence trumps independence. That's when we realize that there's a second mountain waiting to be climbed. And we embark on a new journey.

Brooks suggests that we live in a society that has taken freedom and individualism to such an extreme that it endangers the moral fabric of our culture. He describes four commitments that will help us achieve a life of greater meaning and purpose — and reach the second mountain. Those are the commitments to spouse and family, to a vocation, to a philosophy or faith and to a community. Using real life examples, he shows what can happen when these four commitments are applied and integrated. Our lives improve when we commit to a cause, root ourselves in a community and bind to others in solidarity and love.

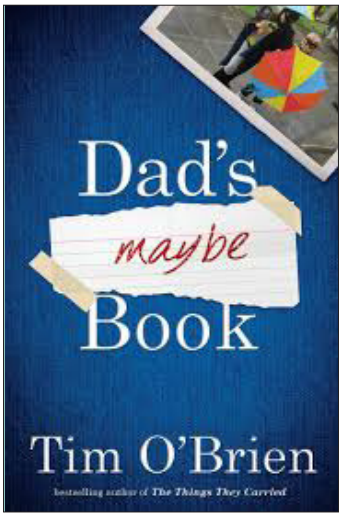
David Brooks has written four other books on society and culture, but this is his best.

The Great Courses®
www.thegreatcourses.com
Reviewed by: Thomas A. Harbin, MD, MBA

The Great Courses® are technically not a book, but they're great for audible fans! When I'm in the car or working out, I enjoy listening to a book — or, increasingly, to one of these courses. When Bill Gates enthusiastically recommended "Big History: The Big Bang, Life on Earth and the Rise of Humanity," by David Christian, I was hooked.

The premise of the Great Courses is that they search for the best lecturers across an array of disciplines and subjects, and ask those experts to record a lecture series. The series is then available in an audio or video format. To a large part, they succeed. I have listened to lectures on various topics, including infectious diseases, extreme weather, George Orwell, emergency medicine, music and history.

The initial cost is high, but after joining their list you'll receive offers for courses at greatly reduced prices. You're sure to find something of interest in their collection of more than 500 courses.



Dad's Maybe Book
By Tim O'Brien
Reviewed by: J. Kemper Campbell, MD

Tim O'Brien is an accomplished writer with nine published books, including his prize-winning novel, "The Things They Carried." He was featured in Ken Burns' 2017 documentary, "The Vietnam War." O'Brien, like this reviewer, was drafted into the U.S. Army in 1968 and his war experiences defined the rest of his life, turning him into a dedicated anti-war activist upon his discharge.

His latest work, "Dad's Maybe Book," took 15 years to write and celebrates another of life's pivotal points: fatherhood. O'Brien became a first-time father of two sons at age 56. His new book is essentially a love letter to those now-teenagers, containing the musings and wisdom of a septuagenarian dad who realizes he may not be able to shepherd his offspring into full adulthood. The text meanders across the years of O'Brien's life, describing wry incidents related to his precocious progeny and vignettes from his own childhood with a loving but alcoholic father. The book also delineates the dehumanizing effects of war and explains the anger and guilt that defined the author's post-military life. O'Brien's writing skills allow him to avoid the maudlin sentimentality inherent in any such project.

O'Brien now teaches creative writing at Lyndon Johnson's alma mater, Texas State University. His admiration for Ernest Hemingway's craft and his respect for the written word are evident in this work. This gentle book would make a satisfying finale to O'Brien's illustrious career, as he seems to have finally dealt with the demons unleashed by his military service in Southeast Asia. In fact, the only discordant chapter in the book is a bitter screed against the evil released by war within the hearts of those who wage it.

This gentle book would make a satisfying finale to O'Brien's illustrious career, as he seems to have finally dealt with the demons unleashed by his military service in Southeast Asia

This book will resonate with any parent who lies awake at night pondering the meaning of existence and the sort of legacy that should be left behind. O'Brien's sons are fortunate. Macho readers should be forewarned to have a few tissues handy for the final chapter, as the room may become a bit dusty.

News from the Foundation

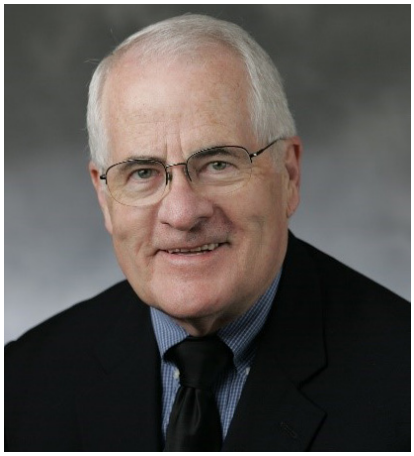
By Gregory L. Skuta, MD, Chair, Foundation Advisory Board

It is with deep appreciation for the work you do and your generosity to the foundation that we send this update. On behalf of myself and the foundation team, we recognize the COVID-19 health crisis as a pivotal landscape of our lifetime. This is a time of uncertainty and challenge for all of us, especially our members. This *Scope* article provides you with information about our work at the foundation, which predates the COVID-19 pandemic.

MARK YOUR CALENDARS FOR THE ORBITAL GALA DURING AAO 2020

Save the date and join us for the 17th annual Orbital Gala on Nov. 15 at the Venetian Resort, Las Vegas. At this year's vintage Vegas-themed gala, you will dine, dance and celebrate friendships amidst the high-rolling luxury of the Venetian Resort Hotel. Bid on one-of-a-kind auction treasures at this 18-karat fundraiser to support vital Academy programs.

Former Academy deputy executive vice president, David J. Noonan, will be celebrated at the 2020 Orbital Gala.



This year, we are thrilled to celebrate David J. Noonan, former Academy deputy executive vice president. To make a tribute gift and have your message included in the Orbital Gala booklet, visit aao.org/tribute.

Purchase tickets after June 17 at aao.org/foundation.

$1 MILLION REMAINING TO COMPLETE THE NEW MUSEUM

In late 2017, the foundation launched a campaign to raise $12 million for a new, brick-and-mortar museum at Academy headquarters. Two generous gifts from members Stanley M. Truhlsen, MD, and Michael F. Marmor, MD, challenged our members, industry and private philanthropists alike to join in this endeavor. We are delighted to have reached over $11 million toward our goal to date!

Your generosity allows us to build a world-class Truhlsen-Marmor Museum of the Eye™, featuring the latest technology. Visitors will be especially enthralled with our virtual reality (VR) headsets. Created by the Academy's eLearning team for U.S. ophthalmology residents, the educational VR experiences demonstrate the visual pathway of a human eye and show how new technology can impact medicine.

We offer a variety of opportunities and ways to give. Visit aao.org/museumcampaign. Questions? Contact the foundation's executive director, Tina McGovern, at tmcgovern@aao.org.

Jay M. Galst, MD, at the donor preview reception, Truhlsen-Marmor Museum of the Eye, San Francisco, Oct. 2019.

IN MEMORIAM: JAY M. GALST, MD, OPHTHALMIC HISTORIAN AND MUSEUM PATRON

The Foundation is saddened by the loss of our friend and colleague, Jay M. Galst, MD, to COVID-19 in April. Dr. Galst was an avid supporter of the Academy's Museum of Vision (now Truhlsen-Marmor Museum of the Eye) since 1985 and was serving as co-chair of the Acquisitions Subcommittee. An avid ophthalmic historian, Dr. Galst worked on the board of the Cogan Ophthalmic Historical Society and was a past president of the Ocular Heritage Society. His book, *Ophthalmologia, Optica Et Visio in Nummis,* details an extensive history of ophthalmic coins and medals.

We hope you will honor Dr. Galst with a gift at this time to the museum, a project that was so near and dear to him. To make a donation in his memory, please visit aao.org/donate.

We wish you the best as you keep yourselves, your loved ones and our communities safe. Please feel free to reach out to me any time at gskuta@aao.org.

Senior Ophthalmologists in the Time of COVID-19

By John R. Stechschulte, MD

It's hard to fathom that the lives of nearly 8 billion people on the planet could be simultaneously threatened — and their daily routines and economies so drastically impacted in such a short time — as we witness during the current COVID-19 pandemic. We in ophthalmology are but a tiny microcosm of what is transpiring across the globe. The Academy is carefully assessing the fallout to our patients and to our profession, and developing resources to assist its members. But what has become clear is that age is a significant risk factor for the disease and may also have specific negative personal and economic effects on senior ophthalmologists (SOs).

Samuel Masket, MD
Chair, SO Committee

In April, the Academy conducted a member pulse survey of U.S. practicing ophthalmologists in private practice to gauge the response of private practices to the COVID-19 pandemic. The survey results show that practices anticipate being nearly or fully closed for three to five months and that a majority of practices will be smaller by the end of the year. The findings indicate that in the absence of substantive federal economic relief and support a small percentage of ophthalmologists will consider stopping practice.

This information means that a number of ophthalmologists, especially those older than 60, may soon have a change in career. Will more of us retire or semi-retire in 2020? Will more doctors leave smaller practices to join larger practices or academic institutions? Will some doctors seek medical but non-ophthalmological careers such as in administration? Will senior doctors who have sold their practices to private equity companies regret the decision to sell? Is it possible that some of us will take on totally new careers outside of medicine?

In the April 10 issue of the *Houston Chronicle,* ophthalmologist Belu Allam, MD, FACS, 66, said, "I would like to stay with the group but I'm at risk for catching the coronavirus and this may go on for several months." She and several members of Houston Eye Associates will retire soon.

The Academy may address other practice changes in future pulse surveys on COVID-19. Members of the SO Committee encourage you to guide the Academy and your colleagues by sharing your practice experiences and any resources that you have found helpful. Please send material to the SO Committee at so@aao.org and we may feature your story in *Scope*.

Coronavirus Updates for Ophthalmology

Read the Academy's latest ophthalmology-specific information on the new coronavirus at aao.org/coronavirus.

Share Your COVID-19 and Ophthalmology Story

The COVID-19 pandemic has changed how ophthalmologists are living their lives, running their practices and treating their patients. The Academy wants to share your stories.

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