

The Foundation of the American Academy of Ophthalmology  
Museum of Vision & Ophthalmic Heritage

**Conversation Between James Ravin, MD and Tracy Ravin, MD**  
Orlando FL, October 22, 2011

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Drs. James and Tracy Ravin recorded this conversation on October 22, 2011 during the Annual Meeting of the American Academy of Ophthalmology, in Orlando, FL.

Together this father and daughter discuss their family history and how the field of ophthalmology has evolved from one generation to the next, building on the museum's [Legacy Project](#) which celebrates families with multiple generations of ophthalmologists.

You are invited now to listen to excerpts and read the complete transcript below.



[In this clip](#), Drs. James and Tracy Ravin recount how James' father, Dr. Louis C. Ravin, met Albert Einstein.

[Here](#), Drs. James and Tracy Ravin discuss the evolution of cataract surgery as it was performed in their family.

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TRACY RAVIN: I'm Tracy Ravin. I'm in Orlando, Florida, October 22<sup>nd</sup>, 2011.

JAMES RAVIN: James Ravin in Orlando, October 22, 2011.

We would like to discuss family interrelationships within three generations of ophthalmologists. We represent four ophthalmologists within these three generations, including my father, one of his two brothers, and the two of us here today. No two of us graduated from the same college, the same medical school, internship, or residency training. We practiced in Toledo OH, San Diego CA, and Melbourne FL.

TRACY: Well, I was thinking how different our training has been and how different the times have been. Yes, we've been in the same field but our experiences have been very different. I remember talking to Papa about when I was a resident and feeling stress about learning surgery, and he said, 'Just imagine how it was when we didn't have antibiotics, we didn't have sutures, and we had to make a huge incision.' The experience in details is different even though we're in the same field and doing roughly the same thing.

JAMES: The family has had roots in Toledo for a century, over four generations, counting from my father's parents. Dad grew up in Toledo, where he went through high school, and was pushed quickly through the educational system, skipping two grades in elementary school. He graduated at age 16 and later felt that he had missed some things socially due to the rapid advancement. But it was the era of the Depression, and most everyone was in the same position. He and his brothers each took one year off from college to help their father run the family store. Previously grandfather and another man owned a truck chassis company, but the Depression destroyed that business, since no one wanted purchases delivered to their homes from the large department stores that bought the trucks. The

chassis business was closed and all employees were fully paid. Grandfather started over in the grocery business. Dad's undergraduate education was at the Ohio State University, with a major in chemistry, and took him only three years. He liked to talk about a difficult chemistry course in the halides. Then he went to Detroit for medical school. When he entered it was named the Detroit College of Medicine, and while he was there the school was renamed the Wayne University College of Medicine. Today it is the Wayne State University College of Medicine.

He gave a cousin's address in Detroit as his home, applying as an instate student to save on tuition, even though all his previous education had been in Ohio. That didn't seem to faze the admission committee. Dad described his interview for medical school. He asked the interviewer, 'When does the admission committee meet?' The reply was 'Right now. You're in.'

He met my mother in Detroit. One of his roommates was dating one of their sisters, and both couples married after medical school and were life-long friends. During his internship she then lived with his parents. During his residency years, she spent much of her time in Detroit, working as a secretary for the Detroit Board of Education, since medical trainees were paid nothing and most programs considered marriage a distraction for house staff officers, who were expected to spend long hours in the hospital.

Dad served his internship at Lucas County Hospital in Toledo, which was a highly selective internship. It was an excellent place to train, since the interns and residents ran the hospital and did everything including all the anesthesia and operative procedures. He was accepted into the residency at Illinois Eye and Ear Infirmary by Harry Gradle, but learned he would have to take the basic science course, probably at the University of Pennsylvania, first. Under the impression that this would not be affordable, he selected the eye, ear, nose and throat program at Beth Israel Hospital in Boston instead. Part of the rotation was at the Boston City Hospital. In Boston the residents from all the different programs were taught the basic sciences together. Most of the teaching was done by Harvard faculty. The salary was room, board, and laundry. He saw the handwriting on the wall, insofar as EENT practice was concerned; that is, the two fields would separate soon. He really wanted to be an ophthalmologist, and preferred the delicacy of eye surgery over tonsillectomies and sinus surgery.

After his year in Boston, a position became available for a second year resident in ophthalmology at Mt Sinai Hospital in New York. There was a competitive written examination, and somehow he received the appointment as the only second year resident. He was the last of the two year residents. Part of the resident duty was to attend every surgical case in the operating room, so he had to be there for every experience, and he had many interesting stories from his New York experience. One was his encounter with Albert Einstein, who was visiting a patient in the hospital.

TRACY: Right. I liked his description. He said, 'I'll tell you the story about my conversation with Albert Einstein. I saw him walking down the hall. Everybody knew who he was, as his hair style was so distinctive. So he went up to him and said, 'Hello, Dr. Einstein.' The reply was one word, 'Hello.' That was their great conversation.

JAMES: Many well-known people were there. Another incident involved a distinguished ophthalmologist, Carl Koller. Koller had made the important discovery that cocaine applied to the surface of the eye will anesthetize it, and this discovery revolutionized ophthalmology. The discovery took place in Vienna in 1884, and Dad met him more than 50 years later. Koller had been chief of ophthalmology at Mt Sinai. In the late 1930s Schlivek was chief. Koller called him to schedule cataract surgery, and had a thick Germanic accent. Koller said something like 'Dis is Carl Koller, and I want to schedule surgery.' Not knowing who he was speaking with, Dad said 'Who?' Koller shot back 'Dis is Carl Koller. You don't know me?' 'Oh, yes, Dr Koller, when would you like to do the surgery?' was Dad's answer.

Do you recall Dad's description of Koller as a surgeon? Very old school. He'd walk into the operating room in street clothes. No mask, no cap, no gloves. Just loosen his tie, no real scrub, a bit of hand washing. But his technique was meticulous. He never touched the same instrument twice, certainly never touched the tip of his instruments, and there were no infections.

Another often repeated story concerned Freddy Theodore, who was just a few years older than Dad. He wrote a definitive book about cataract surgery and its complications. He booked a case with Dad assisting. He walked in and said, 'I can't do this case. I'm so afraid to do this patient, who is a socialite. Lou, would you do this one for me?' So Dad sat down and did the

procedure, which was the same as any other case to him. So it was ghost surgery in a sense, a cute story. After finishing the residency, Dad was asked to join the Fifth Avenue practice of his chief, an unprecedented offer. But after a brief period in the office, when the financial arrangements looked grim, Dad felt it was best to stick with his original plan, and return to Toledo.

Dad had two younger brothers, but outlived both, and died in 2010 at age 98. The middle brother joined their father as a merchant, and the youngest of the three, Oscar, practiced ophthalmology in San Diego for many years. He went to California for health reasons. Both younger brothers developed rheumatic fever in childhood and had rheumatic heart disease. Both later developed subacute bacterial endocarditis as a complication of their earlier heart disease. Dad was not affected. Oscar's education included an undergraduate degree from the University of Toledo; the University of Cincinnati for medical school; internship at Cincinnati General Hospital; and residency in ophthalmology at Mercy Hospital in San Diego. He practiced for many years at an office overlooking Balboa Park.

How and why did I decide on this career path, too? In a sense I might have been subtly programmed for life. Who knows? The family friends included a very large group of physicians in every division of medicine. Many of their children went into medicine as well. Curiously, in my suburban high school class of 80 students, many were children of physicians, but no one else went into medicine. Some tried, but never made it. Sometimes conversations with community physicians would drift into educational plans. People would uniformly say 'What your dad is doing is good, but there are good choices as well. Delay your decision-making until later in your career.' Other students in college and medical school ahead of me were headed toward ophthalmology, which looked like a good choice. I think there were many other fields that were appealing. But the path not followed remains obscure.

TRACY: I feel very lucky to have had the exposure to ophthalmology in the family. When I was in medical school at Case Western Reserve there was a big push to turn out primary care doctors, and I went in with an open mind and had no expectation. I don't feel like you pressured me at all to go into ophthalmology, and my older sister went into obstetrics and gynecology. I was very interested in women's health. I went into that rotation [OB/GYN]

and couldn't stand it at all, and was really glad that I had already decided- just probably because I knew within the family what you did- that I should take an ophthalmology rotation, but I had very little exposure to ophthalmology as a medical student. But after the rotation I realized 'Oh, this is actually a really good field.'

And it was interesting, because in my class there really was no competition to enter ophthalmology. There were very few people interested and it was really not pushed. For some in my class there was a sudden discovery of ENT. So it's sort of ironic, where the split had been. I had really no interest in ENT. But in any case I am really glad that I went into ophthalmology. I remember after only about a week of my residency at Bascom Palmer, just starting in ophthalmology, and sitting down with my friend in residency, Kendall Donaldson, and both of us saying how lucky we were to be in what we considered to be the best field. We asked each other 'Why doesn't everyone want to do this?'

JAMES: Well, could I have done ENT? I suppose, but I never liked people coughing in my face, and I was always catching things from patients during ENT and pediatric rotations. But many surgical fields and subspecialties of internal medicine were appealing.

We have had many family members in medicine. Oscar's wife, Lillian Wuerthele practiced a unique blend of oncology and obesity control. Dad's roommate in medical school, Leonard Hochberg married one of Mom's sisters, then had a family practice on the Grand Concourse in the Bronx, which he always said he loved. At the same time he worked in the family business of wholesale produce. When a crisis occurred in the family, he decided to return to the produce trade. Cousins were in gastroenterology and cardiology. 'Shirt tail' relatives have been in dermatology and rheumatology.

What other friends from high school went into medicine?

TRACY: Many really. A lot of my friends ended up deciding on medicine later, even though they hadn't initially intended to, from a very small high school class of 39. It is probably about a third of them are now doctors. A high percentage of their parents were in medicine.

JAMES: I was around a good group of people in college at the University of Michigan. Many entered medicine and nearly all went to graduate school in law, business and academia. Many provided good thoughts on courses to take or avoid. I learned much from other students and can recall few specific mentors at the college level. Did you have that in that sense in college, mentors towards medicine?

TRACY: Toward medicine, no, not really, especially because I did the coursework for pre-med but I majored in Spanish literature, so the closest person I had to a mentor was a Spanish literature professor. When I asked him for his recommendation for medical school, his experience had been, when we were in Spain on a trip and I was ill, he took me to the hospital, and he was absolutely aghast, I think about ready to pass out, and he saw that none of it fazed me. So when I told him I was going into medicine he said, 'Wow, I think that's fantastic! I think you'll do great.'

JAMES: We both completed the pre-medical requirements during the first three years of college, and needed to find something interesting for the fourth year. I took a chemistry course and an embryology course and seven courses in the history of art. So I had dual concentrations in premedical studies and art history. My parents had raised their children to be exposed to music and the fine arts, and I took courses in art from a very young age. They collected a few things on a small scale. So prior to college, studio art was fused in my mind with the historical aspect. My parents would take us to exhibitions and museums everywhere. Concepts of contemporary art eluded us, though. In a sense, the cultural exposure drew me into the historical aspects of medicine. I learned a reading level of the French language, and you have done better than that by immersion in Hispanic culture. This combination allowed us to pursue some studies where translation was important.

TRACY: That is another aspect I feel fortunate about, that we have some common interests relating to ophthalmology that are appealing in a broader sense.

JAMES: Tell us about your investigation into the life of Jose Rizal, the Philippine national hero who was an ophthalmologist. Curiously, your article in the *Archives of Ophthalmology* was the second most frequently

opened article in that journal last year, with thousands of internet hits. Why has that story been so popular?

TRACY: I think it just must be the broader appeal beyond ophthalmology so that any person looking up Philippine history can come across that article. It's something that non-ophthalmologists can have an overlap with. So it was a great topic that you found, so I can't take credit for that, but I enjoyed writing the story and learning about the culture, as well as the connection that Jose Rizal had with ophthalmology.

JAMES: We published several pieces about Goya.

TRACY: We tried to decipher the illness he had from very limited information, and came up with a differential diagnosis, which is difficult with data that is two centuries old.

JAMES: Previous diagnoses were rather obscure. Malaria, which was endemic in the Iberian Peninsula, even for the first three decades of the 20<sup>th</sup> century, had not been considered for this artist previously to my knowledge. We know he was treated with cinchona bark, which contains high levels of quinine. It was not used only against malaria at the time and could also be toxic.

TRACY: Common things were common then, as now, according to a frequently cited aphorism.

JAMES: Exactly. The thread is a mutual interest in historical aspects which involve ophthalmology.

Let's go back to training in ophthalmology. We served residencies trained at different places, and the difference is probably more generational than geographic. How would you describe the environment at Bascom Palmer Eye Institute in Miami?

TRACY: Very busy. Overwhelming to try to learn everything at once, but ultimately a really great experience. And I also feel very lucky that my class was so unique, that it was the first time, and potentially the last time it will ever happen. The field changed because my residency group of six residents included five women. We got along very well, and I'm pleased even now to

get together with my co-residents here at the AAO meeting. One of the things I look forward to the most about coming to the annual meeting is seeing the people whom I trained with.

JAMES: Did you learn more from the residents ahead of you, fellows, faculty, or any special mentors from there that you would like to recognize?

TRACY: Probably from the other residents. The first-year residents always related with the third-year residents. They were the mentors and supervised the clinic. Being in Miami was a unique experience, since most of the patients spoke Spanish. I was lucky to arrive there already fluent in the language. Half the battle was behind me. I remember saying to one of the third-year residents who didn't speak Spanish 'I'll trade you some Spanish translation for a little ophthalmology.' That way I could barter for help in my clinic.

JAMES: How were the women appreciated at Bascom Palmer during this momentous change?

TRACY: There was considerable concern before we got there about whether or not we'd be able to hack it. Ultimately, the fears were unfounded and our class did a great job. Many of my classmates stayed for fellowships and some are members of faculty there now.

JAMES: Ahead of you, how many were women?

TRACY: On average, one per year.

JAMES: When I was a resident at the University of Michigan, I can only recall one woman resident during the three years I was there. There were none in my class. I'm not sure we thought about it too much. In medical school, our medical school class there was unique, in that we started out with 26 women in a class that graduated 186 people, a large percentage for the time. Of course now it's 50% everywhere. There are no more white males in medical school than 40 some years ago.

TRACY: You have three daughters, and you went into the same field as your father. Did you ever think, well, that's too bad that, you know, I won't have

someone to pass along my practice to, or did you always think that your daughters could step up and do that?

JAMES: Passing on the baton was interesting but not something to dwell on. I could not predict what you girls would do. I would say, 'Yes, this is a good field. You can do it if you want to.' In fact, you two older girls surprised me, in a sense. Your older sister, Amy, was a difficult person to follow: high school valedictorian, Phi Beta Kappa at MIT, a Nobel Prize winner as her first advisor. Astounding. Why give a freshman a Nobel Prize winner as an advisor? What's the point of this? You may be setting the bar too high. But then she went into medicine and has excelled. An academic affiliation at Washington University in St Louis. But neither you nor I cared for the field she entered, ob-gyn.

TRACY: Not at all.

JAMES: And then Victoria, younger than you, watched your career paths and decided, 'No way am I going to do anything you two did. I'm going into the business world.'

Another rather humorous question has arisen, the Big Ten rivalries, since my dad had gone to Ohio State, as did many relatives and your mom and I went to the University of Michigan. I received three degrees there: BA, MD, and MS in ophthalmology. At that time of the residency, most of us entered the master's degree program. Competitive sports are interesting diversions for many of us. In the past the athletes sometimes actually were in classes with standard students. I do not know how they can put in all their hours for training and still take a pre-professional class load. I certainly had difficulty playing on the high school tennis team and coming home to work on problems in physics and trigonometry. To give a serious answer, I am more concerned for the impact on selection of the student body at small competitive colleges. Was Karl Marx correct in the sense that we have a new opiate for the masses? This is too serious an answer to a question that really is about entertainment.

TRACY: What I think is most remarkable, if we could have your dad here and compare the way that each of us has been trained so differently. You learned cataract surgery one way and then had to immediately relearn how to

do it, because everyone was switching over to phacoemulsification. It was a really interesting era and transition.

JAMES: In my father's era cataract surgery wasn't done as much as today. With no intraocular lenses available unilateral cases were rarely done. They do one case or two cases a day, every day, early in the morning at the hospital with a close colleague, another ophthalmologist, assisting. I often had a discussion with him: "Why are you doing it this way? It is so inefficient." But it's the way they had always done it. And they needed to see the inpatients anyway, since outpatient surgery was unheard of. He knew how to do extracapsular surgery, but most cases were intracapsular using a cryoprobe. During his training, the lens was removed using a capsule forceps or an erisophake, which applied suction to the anterior capsule. Enzymatic lysis of the zonules was a major advance during his years in practice, something never discussed today. During my training it was still intracapsular with cryoextraction for adults, and extracapsular extraction for younger individuals. Then we did need to transition into planned extracapsulars in adults, and went through a wide range of intraocular lenses. The phacoemulsification machines have improved our ability greatly, and we await further advances.

Training in Ann Arbor offered me unique possibilities, since Toledo is nearby, actually closer by car than most of the Detroit suburbs. Some residents had moonlighting jobs. I could go to Dad's office on a Saturday I wanted to and work, or he might say, "Well, let's make Saturday a surgery day." These were things that you couldn't dream of doing today. But, you know, I was a resident and a known quantity to the medical staff at the hospitals.

So the other residents appreciated that I had done that, because when I was a third year the second-year residents would say, "Oh, would you watch me do this case?" While the usual third-year resident wanted to do all the cataracts. I felt accomplished enough in the procedure. With other senior residents we would concentrate on picking all difficult cases to do, particularly plastic surgical procedures and keratoplasties.

TRACY: In a sense I was lucky that the thing that I do the most surgically, cataracts surgery, has not changed significantly since I learned the technique as a resident. When you were a resident it was large incision surgery with

sutures. And if you didn't ask someone to be there, were you doing the surgery just by yourself?

JAMES: It would depend which hospital and the insurance requirements. Rules started to be implemented for permanent staffing attendance. In our first major cases, just another resident was there. For minor procedures, no supervision was required.

TRACY: And did you learn from your father how to do some of those procedures?

JAMES: A few practical things. We wouldn't always agree on them. But mainly no, almost everything I learned was in residency.

TRACY: From the other residents?

JAMES: Occasionally from the faculty, but more often the resident who was a year or two ahead of you. The real exception was retinal work, an entirely different entity.

Tracy, it was exciting to hear you get up there at the podium and address the American Academy of Ophthalmology on historical themes. Did you address on Rizal, on Goya, or both?

TRACY: On Rizal I gave a presentation once at the History Symposium, and of course I was happy to be a part of your course that you gave for so many years about the eye diseases of famous artists. I was honored to be included in that for several years.

JAMES: I gave that course for 28 years, a pretty long run on that. And I ran the History Symposium for several years, and am one of the speakers this year. I have been invited to give at least one talk at the annual meeting every year since 1980.

I remember the first time I gave the course, and there was open admission for other speakers. The first year I gave it, Paul Lichter MD, Past President of the AAO and Past Chair of ophthalmology at the University of Michigan said to me, "Why don't you send in an abstract for a course on the ocular health of famous artists? The AAO would probably view it favorably." So

I sent an abstract in and it was accepted. The first time I gave the course it was standing room only and many of the audience were highly respected people in the field. Some of my thoughts were still works in progress, which have been further developed in later years.

TRACY: How did you get interested in the history of ophthalmology?

JAMES: Well, it wasn't a straight linear path. I was interested in ophthalmology and the historical aspects came about from several directions. Major textbooks and articles in ophthalmology often describe how advances happen to occur. Our field particularly makes sense from 1850 on, when Helmholtz invented the ophthalmoscope. The slit lamp created by Gullstrand at the beginning of the 20<sup>th</sup> century allowed better observations to be made. So, much of the history of scientific advances in ophthalmology is easily understood by a clinician who is using these instruments. The artistic side came from another direction. I had spent years studying fine art and its history, even from childhood. During college my major was history of art, but that was after doing all the pre-medical requirements. I was also a premedical major, too, and one more course in chemistry would have met the requirements for concentration in chemistry. Then in medical school, I worked with medical illustrators on various topics, and we published several in journals such as *JAMA*. During residency I continued to research topics that crossed disciplines, such as the Picasso and Velasquez story. Later I dug out more things from the literature, and published journal articles and book chapters. Michael Marmor and I wrote two books about artists and their eyes. The AAO has had an interest in preserving its heritage, its history, and I was invited to become a director of its Museum of Vision and to speak at many of the AAO History Seminars.

TRACY: If you had to think about the articles you've written, is there a favorite?

JAMES: Whatever I am working on currently is usually the favorite. The one that had the most impact is undoubtedly the story of the famous impressionist artist Claude Monet, concerning his cataract surgery. It was based on items I found that hadn't been published before, including his correspondence with his surgeon, Charles Coutela. I had the opportunity to talk to the lab technician of Monet's last ophthalmologist and discussed the

topic with a number of experts, and published it as a cover story in *JAMA*. And it got a huge amount of coverage in the media, even internationally.

TRACY: I still see it turning up in various forms, sometimes referencing you and sometimes not, but I definitely think there's still a big interest out there in that story.

JAMES: Then I was able to go further with the Impressionists, since there is much documentation available. Degas and his blindness, which was probably a form of macular degeneration. Mary Cassatt, with her diabetes and cataract surgery which proved unsuccessful. Vincent van Gogh is always a popular subject. I was able to find documentation of his ocular status by Dr. Gachet, which indicated his acuity and color perception were normal.

Ophthalmologic history is a large field. Some interesting stories include ophthalmologists, such as Richard Liebreich, who created one of the first atlases of fundus disease, and was successful in Germany, France and England. Other stories include the important rulers, such as Queen Victoria, who suffered from cataracts, but never allowed surgery to be done for them.

TRACY: What are you working on currently?

JAMES: A story about Harvey Cushing, the famous neurosurgeon, who was an honorary member of the American Ophthalmologic Society, and a candidate for having been the greatest surgeon of the 20<sup>th</sup> century. He surgically cured a famous magician of a meningioma that had blinded him. The patient outlived his surgeon. Cushing even created the word 'meningioma.' His most famous book is about meningiomas, and he published a long series on this topic in Volume 1, Issue 1, of the *Archives of Ophthalmology* in 1929, the new series. I have been able to obtain the medical record of the magician's admission to Peter Bent Brigham Hospital in Boston, which is very revealing.

Another story concerns William Hammond, MD, who was Surgeon General of the U.S. under Abraham Lincoln. He was court-martialed and Lincoln signed the court martial document. Hammond was the founder of American neurology and established the medical museum on the campus of the

National Institute of Health. He was able to have the court martial overturned.

TRACY: So how do you find your topics? It seems like sometimes one thing leads to another, and you come across a story that sounds interesting, and you look into it further, but you have to start somewhere.

JAMES: Ophthalmology is a fertile field for historical study. Possible areas of exploration include advances in technology, scientific discovery, and changing social mores. Let's go over a few examples. Advances in the technical aspects of cataract surgery have taken place for centuries. Consider Jacques Daviel, an 18<sup>th</sup> century Frenchman. How did he figure out how to do the first planned cataract extraction when no anesthesia was available, except for alcohol, cannabis, ice or carotid massage? We have already discussed Carl Koller and his discovery of topical anesthesia using cocaine in 1884. Hermann Knapp, the first important European professor to emigrate to the U.S., learned about cocaine early and explored its possibilities, especially for injection. Another story involves Knapp and Sigmund Freud meeting in Paris. Knapp was already well established in New York when he made a visit to Paris to visit Charcot's clinic. Freud was there on a travelling grant from the Allgemeines Krankenhaus. Freud fumbled through his pockets to find his business card, which he gave to Knapp. It said something like, "S. Freud, Vienna." Knapp looked at it and said "I know who you are. You're the man who wrote that magnificent treatise on cocaine." This was well before Freud was involved with psychiatry. He was trying to establish himself. He had been doing anatomical studies and had written a monograph about a rather obscure medication from Peru that people were chewing for stimulation named Coca. Freud just missed making the discovery of cocaine's anesthetic properties. Koller was his friend in Vienna and both worked at the Krankenhaus. So Freud and Knapp had an interesting conversation.

TRACY: That seems like a place where you'd like to be the fly on the wall.

JAMES: Sure.

TRACY: So if you could choose a moment in time that you could be the fly on the wall, to sit there, watch and listen, when would it be?

JAMES: There have been many episodes famous groups of ophthalmologists congregated for conversation. During the International Exposition at London at the middle of the 19<sup>th</sup> century, Bowman, Donders, and von Graefe met. Later Bowman and Donders visited Charles Darwin. Who wouldn't want to have been present when Helmholtz invented the ophthalmoscope?

TRACY: To be there at the time when he first saw the optic nerve.

JAMES: Yes, when Helmholtz had his eureka moment in 1850. Well, a few others may have preceded Helmholtz, including Purkinje and Babbage. Babbage is considered the inventor of the computer. He presented his version of an ophthalmoscope to a prominent English ophthalmologist named Wharton Jones, but Wharton Jones couldn't see anything with it. Helmholtz modestly said that anyone with high school knowledge of physics could have made the same invention. But the credit goes to the person who convinces the world, and in this case it was Helmholtz.

TRACY: Who was it who was so excited on being able to see the optic nerve with an ophthalmoscope the he threw the instrument into the air and the mirror hit the ceiling?

JAMES: He remains anonymous. Yes, there was a darkroom where physicians would examine fundi, which was not easy using the first instruments. The illumination system was just a candle or a gas jet, no electricity. To dilate the pupil required atropine, which takes considerable time to take effect, and much longer to wear off.

Self-experimentation is another interesting subject. Some investigators did not survive to tell their story. Sir Arthur Conan Doyle almost killed himself while experimenting with gelseminium, then published his own case report in the *British Medical Journal*. Later he became an ophthalmologist, and still later wrote the Sherlock Holmes stories. Early work with physostigmine (eserine) involved self-experimentation with a potentially lethal toxin. It is derived from the Ordeal Bean which is native to tropical West Africa and was used in trials by ordeal. If you were accused of a capital offense, you were forced to swallow a concoction made from the bean. If you survived, you were declared innocent. If you died you were obviously guilty. A number of Scottish missionaries took the bean home

with them for investigation. They knew it countered the effect of atropine on the pupil. It became the first effective medication in treating glaucoma, even prior to the use of pilocarpine.

TRACY: Do you remember your first Academy meeting?

JAMES: Sure, when I was a senior resident. Well, Dad would talk about the AAO annual meeting, too. In those days it was invariably held in Chicago at the Palmer House Hotel and was characterized by long lines for registration and courses. He'd go there and meet his brother and discuss what courses they were going to attend. The duplication was like that of identical twins.

And recollections of your first Academy meeting?

TRACY: My first memory was of you returning from an annual meeting, wearing a cowboy hat, so the meeting must have been held in Dallas. But I don't remember actually going to any of the annual meetings until I went as a resident. My first Academy meeting was like being kid in a candy shop, just wanting to go to every single course, every talk, just couldn't get enough, just finding it all fascinating and wishing that I could stay longer.

JAMES: I have been asked to discuss the relevance of the history of ophthalmology for young ophthalmologists today. Why should they learn about this? Why shouldn't they just be learning every technical advance? One argument is if you don't know where you came from, you're probably not going to know where you're going. Certainly, residents must learn all the basic information. They've got to become immersed in the factual material, pass the board examinations, and keep current, and know the surgical technique. But it still is important to know how your specialty evolved.

I'm not sure there's any magic age at which an interest in history begins. The British ophthalmologist Treacher Collins, in writing a history of Moorfields Eye Hospital, suggested that it is an early sign of senility. Of course this was pawky humor. Should we believe Henry Ford's statement that history is bunk? He didn't really believe that himself, because he founded a great institution in Dearborn, Michigan, Greenfield Village and

the Henry Ford Museum, and transplanted Thomas Edison's laboratory and the Wright Brothers Cycle Shop there.

TRACY: I remember having a type of eureka moment after thinking that I had been dragged to every museum in every major city in the U.S. for so many years as a child and not enjoying it. Actually, I think it happened in front of *Las Meninas* at the Prado in Madrid. There it was in real life, really displayed well with an artificial window with light to shine on the painting. It suddenly clicked. From then on I actually enjoyed art and museums and wanted to continue on in the family tradition. I have been fortunate in the sense that I have been in this family where there's been a strong emphasis on both the humanities and the sciences.

JAMES: The Stendahl syndrome, named after the 19<sup>th</sup> century French writer, may apply here. He encountered the phenomenon of being overwhelmed in the presence of a beautiful object for the first time.

Returning to the history of our field, the Cogan Society (Cogan Ophthalmic History Society) has held an annual meeting for 25 years. Individuals who have not been members can attend the meetings, which are held in a different city every year. It was founded by David Cogan, the neuro-ophthalmologist who was in charge of the National Eye Institute in Bethesda, Maryland. Although he and I had not met when the group began, I was invited to become a charter member. Many members consider it their most enjoyable meeting of the year. Members do not have to present a paper every year. The topics vary widely, and biographical sketches are the most common type. Concepts are a little harder to describe. Great reading for the history of our field are Charles Snyder, *Our Ophthalmic Heritage*; James Lebensohn, *Anthology of Ophthalmic Classics*; and Daniel Albert, *Men of Vision*. Julius Hirschberg's multiple volume *History of Ophthalmology*, translated by Frederick Blodi, is a classic reference. Blodi's two children each became ophthalmologists, and each one has presented papers at Cogan Society meetings.

Michael Marmor and I have co-authored papers and two books about artists, the nature of vision, and effects of illness on artists. We published a history of fluorescein angiography recently and we are even getting fan mail from that. The French Ophthalmologic Society asked to republish it in French.

TRACY: Considering our family history, I want to ask if you have any thoughts on what was it like to be in practice with your father?

JAMES: At first it wasn't just my father, since there was another partner. It wasn't always easy. At times Dad was strong willed and his father before him was even more so. Many patients took to me rather easily while others always wanted to see Dad. There are always conflicts in any organization. So it took a little while for him to mellow and say, "You were trained well." If you practice alone you are unlikely to have errors pointed out to you. And the larger the organization, the more likely compromises have to be made. I do not see much future for a solo practitioner. It is a rare niche player who can survive in this environment.