

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

Conversation Between Patricia Bath, MD and Eve Higginbotham, MD
Orlando FL, October 23, 2011

Drs. Patricia Bath and Eve Higginbotham recorded this conversation on October 23, 2011 during the Annual Meeting of the American Academy of Ophthalmology, in Orlando, FL.

Dr. Bath is a corneal specialist from California and Dr. Higginbotham is a glaucoma specialist living in Georgia.

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[In this excerpt](#) Dr. Bath discusses her laserphaco invention and some of her other contributions to ophthalmology.



Professor Patricia Bath at UCLA, JSEI 1986



Dr. Higginbotham [reflects](#) on her career in ophthalmology and the mentors that inspired her along the way.

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PATRICIA BATH, MD: I'm Patricia Bath, and I'm here in Orlando. It's a beautiful day. It's October 23rd, 2011.

EVE HIGGINBOTHAM, MD: I'm Eve Higginbotham. I'm in Orlando, Florida, October 23rd, 2011.

PATRICIA: Well, Eve and I have had a couple of conversations over the phone about the sort of things that we should talk about. One of the things we agreed on was to talk about our careers and who were some of our role models and mentors. And since I know this was one thing that she wanted to talk about, about her career getting started, why don't you begin and then I'll comment?

EVE: Well, thanks Patricia. I think it's good to start at the very beginning because my career was certainly shaped by my experiences growing up in New Orleans. I grew up during the civil rights era. My parents were both public school teachers, and so education was extremely important to them. I had the chance early on to actually create an opportunity for others by integrating an elementary school, and I think that was an impactful time for me because it happened just as the Civil Rights Act was passed in 1963. That experience shaped my whole career, striving to be community-focused, being of service to others, and wanting to leave the world a better place.

PATRICIA: Well, if I might just chime in before you go further, because I see some commonality there. When you speak of the civil rights era I feel compelled to mention that I met the Reverend Dr. Martin Luther King, Jr. in 1963. Because of his influence in my life and his dreams for the poor, I worked for the Poor People's Campaign. In 1968 I organized medical students to volunteer health services during the Poor People's Campaign in Resurrection City in 1968.¹ Service to the underserved was a natural evolution of my life from my Harlem roots.

¹ Mazique, Edward C. "Health Services and the Poor People's Campaign." *Journal of the National Medical Association* 1968 July; 60(4): 332-3

Growing up in Harlem, education was a priority in my family household also. One had to strive to do one's very best. And, although we were a poor family, both of my parents worked and they both felt that education would be the ticket to success. So I just wanted to let you know that our families shared that value of education. And it would be wonderful if in today's society, education would be more important to the children, especially those children in underserved areas, minority areas, because unfortunately I see so many of these children being seduced by the entertainment world and wanting to become rappers and movie stars. Of course, we certainly need those people in our economy and society (athletes, also) but education is very important.

EVE: I agree. And certainly as I'm sure we'll talk about broader issues a little bit later, in my opinion, education is a key social determinant of health. You know, when you think about the significant level of health illiteracy that we have in this country, it certainly contributes to the challenges we now have in healthcare.

Well, New Orleans was a very challenging place in the 60s and the 70s, but it taught me lessons of resilience. And so when I did have the chance to go all the way up north to Boston without really having any family roots there, to MIT, I saw it, again, as an opportunity to forge ahead and create a path for others to follow. I was able to complete my bachelors and masters degrees in chemical engineering in four years, and decided at that point that I wanted to go to either graduate school or medical school. After a lot of soul searching, I decided to stay in Boston and go to Harvard.

And so, I'm forever grateful to my parents who on two public school salaries were able to send me to such great institutions to get such a sound educational foundation. I have two sisters; one is a physician, and the other is a medical librarian. My niece is soon to become the third Dr. Higginbotham when she graduates from Emory School of Medicine later this academic year. So education was very important, as you just emphasized, for my family, and it sounds like something that we share.

PATRICIA: Yes. One notable event in my early development, which really propelled me to pursue the career in medicine was the fact that my father's best friend was a physician. And at that time in Harlem, different economic classes all lived together, and that was because of segregation. So next door to the ironworker and domestic worker would be a physician, accountant, or

lawyer. And so we had neighborhood role models, some of whom were close family friends. During my high school education, one of my teachers felt he saw a glimpse of genius and so he selected me to be nominated for a National Science Foundation high school grant. And we prepared a submission, and my submission was accepted. As a result I got a National Science Foundation Grant, did research, and was a student at the Yeshiva of Albert Einstein College of Medicine. I did research with other gifted high school students and that brought me closer to the reality of believing that, yes, I can achieve, yes, I will go to medical school, and yes I will achieve my dream. My NSF award and mentorship at Yeshiva was a life changing event. Wow! that even during the struggles of the civil rights era there was still a lot of harmony and friendship between different peoples.

I am happy and proud to share that as a teenage budding scientist from Harlem, I was first mentored by a white Jewish school teacher, Dr. Howard Leibowitz.

EVE: Great. Great.

PATRICIA: Yeah.

EVE: Well that's another thing we share, Patricia. I was also impacted...

PATRICIA: I didn't know we shared so many things, thank you.

EVE: ... by the National Science Foundation, because I had a chance when I was a junior in high school to go to LSU in Baton Rouge, La. with other high school students and learn all about thermodynamics and astronomy among other topics. I was already, though, very interested in science because of the race to the moon, and the interest of this country and Kennedy's interest in ensuring that America would be first to accomplish this goal. So I was part of that generation that was inspired by him, as well as the national movement that embraced science.

Medical school certainly was a great experience. What made you decide to go into ophthalmology?

PATRICIA: Well, that's a very good question. While I was at Howard, I was introduced and mentored by one of the most amazing women in ophthalmology, Dr. Lois A. Young. And she was the Acting Chief of Ophthalmology at Howard while I was a student there. And she inspired not

only myself, but eight or ten of my classmates. We all decided to go into ophthalmology because of her. And, as a matter of fact, I believe that Lois Young was probably someone whose footsteps you walked in because she was the first African American woman ophthalmologist on the faculty at University of Maryland.

EVE: Yes, indeed. In fact, when I became Chair at Maryland, certainly Lois Young and her legendary tenure there was a true foundation for the department. I actually had the pleasure of following up on some of her patients. And having the chance to...

PATRICIA: She was loved by her patients.

EVE: Yes, indeed. And having a chance to reflect as I learned more about her career, you know, this might be a chance for both of us to share a story about Dr. Young because she was a pioneer for all of us in ophthalmology.

It's my understanding that her father was one of the first, if not the first, African-American internist to have privileges at Johns Hopkins. And when it was time for Lois to do a residency at Hopkins, I believe that was the stage of her career, it was difficult for her to be considered. Of course, being African-American wasn't something that would provide you a path to be a student there or do your training at that time. It was impossible for her to train there because of the lack of tolerance for diversity, even though her father had been a pioneer and had admitting privileges. So I believe it's a benefit for us that she was able to spend time both at Howard, as well as University of Maryland because she really did create paths for so many of us who have followed in her footsteps.

PATRICIA: Right. I know that story also. She told us about that and I think her father, upon retirement, was given a gold watch and some certificate after so many years of service. And as he accepted that, he then said, 'This is great, but when my daughter applied you didn't give her a chance.' And as a result of his stirring retirement speech they made some arrangements and Lois was given extraordinary access to the best rotations in several different fields- strabismus, pediatric ophthalmology, neuro-ophthalmology, retina. So they made allowances, you know, after the fact, because he made a courageous speech about it. He was a true hero.

She was a loving and devoted daughter who took care of her parents, both of them, until they died. She herself died of breast cancer as you probably know.

EVE: Yes. I've had the pleasure of actually hosting individuals to give the Lois Young Lecture at University of Maryland, when I was Department Chair there, as well as giving the Lois Young Lecture at Howard. So I do feel as if her memory is inextricably entwined with my career.

So you talked about going into medical school. Did you say why you went into ophthalmology because of Lois Young...

PATRICIA: Because of Lois, yes.

EVE: So my path into ophthalmology was also because of a woman mentor. And that was Mathea Allansmith at Harvard Medical School. Mathea was an extraordinary role model because she had a very active laboratory at the Schepens Institute, held a faculty appointment at Harvard, had also a practice at Beth Israel and was the mother of six children. Thus, she seemed to have it all and seemed to love it all. And I thought, if this is a field that allows you to have such a full existence, this is a field that I really want to learn more about. So I had the chance of doing research with Mathea for a summer and actually had the opportunity to write a paper with her. So Mathea Allansmith is someone whom I put at the top of my list as an individual who showed me the way into ophthalmology.

PATRICIA: And I have to give credits and props to another woman ophthalmologist, Dr. Danièle Aron-Rosa, who was an Academy Laureate recipient a few years back. I was fortunate enough to be able to take a sabbatical. And when I decided what I'd like to do, and who I'd like to work with during my sabbatical, I was fortunate because I had met Dr. Danièle Aron-Rosa at some of the national meetings. She was happy to have me as her mentee and her tagalong for a summer. And not only did I work with her at the Rothschild Eye Institute, but she invited me to be a guest in her home. So during three months in the summer of '86 I lived with Dr. Danièle Aron-Rosa and it was a wonderful experience. Not only to do the research with a pioneer in lasers and ophthalmology, but also to get to know the French culture, her lovely family and the Rothschilds. So my sabbatical with Dr. Daniele Aron-Rosa was another life changing moment in my career and what a fabulous summer in Paris.

I had formulated some experiments that I wanted to do and some of these I was able to do in her lab. The others I was able to do when I went to Berlin, at the Laser Medical Center. And it was there that I was able to begin early studies in laser cataract surgery. They had amazing facilities there. And I did my first experiment with excimer laser phaco-ablation in using human eye bank eyes. A sabbatical is really a wonderful opportunity for an ophthalmologist who has a foot in academia, clinical practice and research, and I certainly recommend it to any ophthalmologist. If not for that I probably wouldn't have been able to have found the time to devote to this kind of scholarly activity and innovation; it was a pause from the humdrum of teaching responsibilities, clinical responsibilities and patient care.

EVE: So at what stage of your career were you at the time? Were you a junior faculty member at Drew at that point?

PATRICIA: No, as you probably know, at least as it was, after six years you're entitled to a six-month sabbatical, after 12 years you're entitled to a 1-year fully paid sabbatical...

EVE: What institution were you on faculty?

PATRICIA: I was at both Drew and UCLA. During my time, there was not the luxury of being at one institution. I was a member of the fulltime faculty at the UCLA Jules Stein and fulltime faculty at Charles R. Drew and a fulltime county employee. And one simply had to grind through it all, which is why a sabbatical was so important. You haven't had an opportunity to have a sabbatical yet?

EVE: Well, it varies at various institutions. And the way that clinical ophthalmology has evolved, it's very difficult, I think, for faculty to take sabbaticals these days, because it is such a significant grind, because it's all about RVUs.

I want to reflect back on my early stages of my career, because once I went into ophthalmology... certainly there were many opportunities to go into other specialties, but it was my Department Chair at the time when I was a resident at LSU who actually suggested that I go into glaucoma, and that was Herb Kaufman. I had a chance to really gain a significant amount of experience in the anterior segment with Herb as the Chair of the department, but also with Thom Zimmerman. Thom Zimmerman was particularly impactful in my choice of glaucoma as a discipline.

PATRICIA: Why do you think they suggested that you go into glaucoma when Herb was a corneal guy and Zimmerman...was a renowned pathologist ?

EVE: Thom Zimmerman was actually a renowned glaucoma specialist, who unfortunately passed away about a couple of years ago. Well, of course, LSU had much of its residency experience at Charity Hospital. And Charity... what we used to call 'Big Charity' unfortunately no longer exists at this point because of Hurricane Katrina in 2005, but it was a rich opportunity for physicians-in-training. There, it was evident that African Americans were particularly impacted by glaucoma. It was an extraordinary time to really be reminded of the opportunities out there to uncover why disparities existed; where you saw many, many more glaucoma patients who were African American versus others. I recall, when I went to interview at Mass Eye and Ear for a fellowship, it was at that time that Morton Grant was just pulling together his research that led to the seminal paper, 'Why Do Patients Go Blind From Glaucoma?' And he asked me the question, "Do you really think there is a greater prevalence of glaucoma among African Americans?" And I said, "Yes! There is that observation." That was an affirmation that I was on the right path.

I know, Patricia, you've done some research in this area, as well.

PATRICIA: Right, another area of commonality. So, just approximate, what year was Morton's paper? I have an interest in that because I believe that my paper in 1976 and publication in 1978² represented the first published discovery of excessive blindness due to glaucoma among African Americans. My research in the 70's was subsequently affirmed in a 1990 publication by Hopkins³.

EVE: 'Why Do Patients Go Blind?' is certainly a paper that we all recommend for our residents to read. I think it was in the early 80s to mid-80s. His seminal paper was based on the disparity in blindness among patients seen at Mass Eye and Ear within the same clinical population.

PATRICIA: Well, although I chose a path in cornea and cataract surgery for my specialization, I could not help but be impacted by my observations of

² Bath, Patricia E. "Rationale for a Program in Community Ophthalmology." *Journal of the National Medical Association* 1979 Feb; 71(2): 145-8

³ Bath, Patricia E. Letter to the Editor. "Blacks at Greater Risk of Blindness." *Archives of Ophthalmology* 1990 Oct; 108: 1377-8

the prevalence of blindness among African Americans. And this started, really, while I was an intern at Harlem Hospital. I would volunteer in the eye clinic as an intern, and I just observed huge numbers of patients who would come in visually impaired or blind.

Those observations of excessive blindness propelled me to do a study. My study was unfunded, and retrospective. The only thing at my disposal was the state blindness registries. Blindness registries are required, as you know, because there's a tax deduction associated with legal blindness. And when I painstakingly reviewed the data by hand—we weren't using computers back then—I discovered much to my amazement that the prevalence of blindness in the United States among Blacks was double that of Whites, and the rate of blindness due to glaucoma was eight times that among Blacks as compared to Whites, and it caused me to look into this and wonder, 'Why is this?' I still don't know if we have an answer today. But I knew that this was a problem; that I felt the problem required a unique approach, a public health-based approach, using the methods of epidemiology, health education, demographics and biostatistics. At some point lab research might be necessary but, at least to get a handle on the problem, we had to employ a new approach. And I published my findings, back in 1978 in a paper called "Community Ophthalmology—Rational For a Program in Community Ophthalmology." Because I felt this was a public health issue, I presented it first in 1976 at the American Public Health Association, where everyone looked, wondering, "Why is an ophthalmologist talking about public health issues?" But as we know, this is something that's now widely embraced and widely recognized. Al Sommer is one of the strongest advocates for this and he was awarded the Academy Laureate Medal today.

EVE: Yes. there has been a lot of progress in this area. And at least there's a greater awareness among ophthalmologists, in general, as well as the broader spectrum of medicine, that there are disparities that exist. I think it's important to point out that invariably much of this is probably related to, again, the social determinants of health, education, income, geography, to some extent related to possibly environmental factors, access to care—all of these things are coming into play. In general, it's believed that genetics only plays a role 25 percent of the time as it relates to the pathogenesis of disease and thus contributing to health disparities.

So there's a lot of work yet to be done, but I think your presentation in the late 70s, Dr. Sommer's work, and others engaged in the Baltimore Eye Survey, as well as Dr. Grant's seminal paper are important milestones that we should all recognize.

PATRICIA: Thank you, I agree.

EVE: So I think there is a thread here because you mentioned a number of individuals that were important mentors to you. So are there any other mentors that you would like to recognize?

PATRICIA: Yes, I have to mention Dr. LaSalle D. Lefall, Jr. who was the Chair of Surgery back at Howard University. He has mentored so many renowned surgeons, it's just totally amazing. And I'm happy to say that he's alive and well, and passing the torch, and trying to raise money for the university. And of course there's already a LaSalle D. Lefall Chair. He was a surgeon, general surgeon extraordinaire, and someone who exemplified the best things that we expect in a physician: compassion, diligence stick-to-itiveness, and striving to perfection...to perfect the art of surgery. He is a great man.

EVE: There are other individuals who were important in my career, as well. David Epstein, who was at Mass Eye and Ear at the time and now is Chair at Duke Eye Center, has certainly been a role model and now a friend. My first Chair at the University of Illinois, Morton Goldberg, I will always remember because he gave me my first professional job as a faculty member. In fact, I remember sitting there just in awe of Mort Goldberg and the department that he had built at the point when I was interviewing in the mid '80s. You know, he said, 'Well, look at all these books behind me. These are books that my faculty have written.' So already I knew that there was an expectation there. And so he was certainly a mentor, both directly, as well as indirectly. At the University of Illinois I had the chance of getting started on my first clinical trial as an investigator, the 5-Fluorouracil Filtering Study and subsequently the Advanced Glaucoma Intervention Study. That was the beginning of, at least, the most recent golden age of National Eye Institute clinical trials.

PATRICIA: Tell me about the 5 FU study.

EVE: The 5-Fluorouracil Filtering Study was a trial that I cut my teeth on. It was led by Rich Parrish out of Bascom Palmer. It really was a good opportunity for me, as a junior faculty member, to understand the basic tenets of a multicenter trial, as well as get to network with a number of the investigators. This was a trial that first tested and proved the benefits of antimetabolites infiltration surgery. Of course we were not using 5-

Fluorouracil in the way that we use antimetabolites currently, but it was an opportunity for many of us to get started on conducting clinical trials. And following that was the Advanced Glaucoma Intervention Study which was led by Doug Gaasterland, again, an opportunity to really broaden my network in glaucoma.

Are there other things you would like to focus on as relates to your own career?

PATRICIA: You know, I would first like to say that you're very fortunate to have had Mort Goldberg. You know, I've only known him from afar, but he's an amazing ophthalmologist and educator. I've always admired him.

But, fortunately, you know, I had Bradley Straatsma as my Department Chair at UCLA Jules Stein. And he gave me my first academic appointment at UCLA, Department of Ophthalmology. I was appointed to the faculty in 1974 and I didn't realize for some years that I was the first woman ophthalmologist faculty member there. I was unaware of that distinction because I was so busy as a full time faculty member at 3 different institutions. I was juggling so many balls because, as I indicated, I had a dual appointment, there, plus at Drew, plus with the county. I was at UCLA two half-days doing private practice, grand rounds, my surgery and then the rest of the time I was at the King Drew Medical Center. So I didn't realize until 1976 when another woman ophthalmologist joined the faculty, Dr. Bronwyn Bateman. And I said, 'Hey, it's nice to have another woman ophthalmologist here.'

But Brad Straatsma was certainly my mentor in that he provided for me when I was there and selected me to be the first woman faculty. And he was there for me at critical moments in my career, like in 1983, when the Chairman of the residency program at Charles R. Drew had left. There was a moment when they were trying to decide who to appoint and Dr. Straatsma sent a letter to the Dean stating that he recommended that I be appointed as Chair—(by the way, I framed that letter)—because of the improvements I had made and my accomplishments at UCLA. With his support I became the first woman Chair of an ophthalmology residency program in 1983. So I am happy to certainly list him in the group of role models and mentors that have been important in my career at those critical points.

EVE: I think one of the things I like to highlight for particularly junior faculty is that one's career in academia is really a journey. It's not a

destination. So as I look back on my career, I started off at University of Illinois as a junior faculty, then went to University of Michigan, was able to have tenure there, and that's when I discovered the opportunities that existed in academic administration. So my first administrative job was actually being Assistant Dean for Faculty Affairs at University of Michigan, which was a wonderful experience. That led to my opportunity to be at University of Maryland academic medical center in the position of Department Chair. So it's an amazing journey. When I transitioned to the University of Maryland, it was a point in time when I had to decide between resubmitting my application for an RO1 versus taking on this new job as a Department Chair, and I said, 'Well, I'll come back to my revision of my RO1 in a couple of years,' but, of course that never happened because one does get busy with other things. I was still on my journey.

So these are things I wanted to note in my quest to try and increase awareness about glaucoma beyond the boundaries of ophthalmology. You alluded to this already—the fact that you presented at the APHA. So I guess my path was really trying to do it along the administrative path. I decided to go on the path of being a Dean. I wish there were more Deans who are ophthalmologists because I think that is the opportunity for the discipline to really make significant changes in academia.

We had other role models that we've talked about, and certainly Don Wilson who was my Dean at the University of Maryland is one. He was the first African American, actually, to be a Dean at a major institution. So...

PATRICIA: What year was that?

EVE: That was... let's see, I'm not sure when he was made Dean. Probably it would have been 1992...

PATRICIA: That late.

EVE: ... or so, or 1991...

PATRICIA: Amazing.

EVE: Yes. Medicine is behind the curve, in general, and so that's why I think, Patricia, it's important for us to do this oral history together.

PATRICIA: And we are.

[End Part I]

EVE: Hi, I'm Eve Higginbotham. I'm in Orlando, Florida at the American Academy of Ophthalmology Meeting, and it's October 23rd, 2011.

PATRICIA: Hi there. I'm Patricia Bath, here in Orlando at the Academy. It's October 23rd, 2011

EVE: Great. Well, Patricia, in the first part of our conversation you talked about the highlights of your career, your time that you spent in Europe during your sabbatical, as well as your work in public health. Are there some other thoughts regarding the highlights of your career you would like to add?

PATRICIA: Well, you know, many times these days I get asked what do I think my greatest accomplishment or greatest accomplishments have been. And it's always tough to answer that. Philosophically, I like to think that my greatest accomplishment has to be in those moments when I've helped someone regain eyesight, when I remove the patient's patch and he starts with the big E and goes all the way down to the 20/20 line. But then I realize that many times you cannot be the surgeon for everyone who needs eye surgery, and that there are more people blinded by preventable causes and treatable causes than any given ophthalmologist could ever treat. And so, as I look at that question I say, 'Well, maybe community ophthalmology,' trying to invent a new discipline of medicine in which you would spread globally the concepts of health education, blindness prevention, screening, the use of epidemiology within the community so that the community, the stakeholders, can determine what diseases are important and what the risk factors are, and then mobilize the entire community. We already know it takes a village, but to mobilize the entire community and so with the help of the experts, the institutions, help themselves. So I think of community ophthalmology. And I could go on and on and on. But usually when people ask me that question they expect me to say, 'laserphaco' because I have five U.S. patents and, you know, I'm recognized as a pioneer in laser cataract surgery.⁴ So it's a tough question that I'm going to throw back to you. What are your most important accomplishments in your view?

⁴ Bath, Patricia E., Gerhard Mueller, David J. Apple, Robert Brems. "Excimer Laser Lens Ablation." Archives of Ophthalmology 1987; 105(9): 1164-1165

EVE: Well, I like to think of them as highlights because I'll let the accomplishment label be applied by others. But certainly one of the highlights for me was my fellowship in Boston as a glaucoma specialist. In addition to others who I have mentioned, I would like to recognize Tom Richardson and Richard Simmons, who gave me a great foundation for a wonderful career in glaucoma.

That certainly leads me to, I guess, another set of highlights: I would say my involvement in the clinical trials in glaucoma. I have to also recognize Dr. Carl Kupfer who, unfortunately, passed away this past April. But as the Founding Director of the National Eye Institute, he certainly, over 30 years, provided a legendary foundation for eye research in this country. But having the chance to be an investigator in the trials that we mentioned earlier: the 5-Fluorouracil Filtering Study, the Advanced Glaucoma Intervention Study, and, most recently, the Ocular Hypertension Treatment Study with Michael Kass as the principal investigator; these have certainly given me many, many moments of enjoyment as I engage with colleagues such as Rich Parrish and Dale Heuer, as Co-Vice Chairs of the Ocular Hypertension Treatment Study, Mae Gordon and others in a study that really has changed, I think, the way that we have markedly managed ocular hypertensives.

My other highlights, I would say, include the development of a project called the Student Sight Savers Program. This ties into your interests in community ophthalmology. Because ophthalmology is not a mainstream requirement for medical students, my concern has always been that medical students would not have the benefit of being educated in the art of viewing the eye, specifically direct ophthalmoscopy. And so this is a program that was funded by the Friends of the Congressional Glaucoma Caucus Foundation that allowed us to support efforts in as many as 50 medical schools around the country. It provides rich opportunities for first and second year medical students to go into the communities that you talked about and do screenings and education.

Bath, Patricia E. 1986. "Apparatus for Ablating and Removing Cataract Lenses." US Patent 4,744,360, filed Dec. 12, 1986, and issued May 17, 1988

Bath, Patricia E. 1995. "Method and Apparatus for Ablating and Removing Cataract Lenses." US Patent 5,843,071, filed May 15, 1995, and issued Dec. 1, 1998

Bath, Patricia E. 1997. "Laser Apparatus for Surgery of Cataractous Lenses." US Patent 5,919,186, filed May 8, 1997, and issued Jul. 6, 1999

Bath, Patricia E. 1997. "Pulsed Ultrasound Method for Fragmenting /Emulsifying and Removing Cataractous Lenses." US Patent 6,083,192, filed Feb. 14, 1997, and issued Jul. 4, 2000

Bath, Patricia E. 2000. "Combination Ultrasound and Laser Method and Apparatus for Removing Cataract Lenses." US Patent 6,544,254, filed Jun. 28, 2000 and issued Apr. 8, 2003

PATRICIA: That's really impressive.

EVE: It's been a true highlight for me, particularly when I meet residents now who participated in Student Sight Savers when they were medical students.

PATRICIA: Well, congratulations. And this is a program that you started?

EVE: Yes. Yes, but certainly I couldn't have done it without the Friends of the Congressional Glaucoma Caucus Foundation and Mr. Bud Grant, the founder of that organization, who unfortunately passed this past winter.

Another highlight are my administrative opportunities that I've had, being Dean at Morehouse School of Medicine and then subsequently the Senior Vice President and Executive Dean of Health Sciences at Howard University. These are enormous responsibilities, to take on the mantle of organizations that are producing the next generation of physicians. It was a great opportunity to assert the importance of visual sciences as well as making sure that students had the exposure to eye care that they should have during their training.

So those are just a few of the highlights that I have. And it certainly has been a remarkable journey.

PATRICIA: What are your fondest memories of the AAO, the American Academy of Ophthalmology?

EVE: It's hard for me to remember my first Academy meeting. I just remember it was huge when I came. I just thought, 'Oh, my God.' I had never seen so many ophthalmologists in one place and it felt as if I was standing at the center of the universe in terms of eye. It was an exciting time. I believe I was a junior faculty member at University of Illinois when I first came. I remember my first presentation from the podium and I had my parents and my husband, Dr. Frank Williams, in the audience. It was just one of those moments that will remain frozen in my mind and heart. So the Academy, I think, is a special meeting for all of us, and certainly gives me a chance to reconnect with many of my colleagues who I've trained with, who I've worked with at other institutions. It's as if I am visiting members of an extended family.

What about you?

PATRICIA: Well, you know, I think fellowship with colleagues here at the Academy is one of the things that I look forward to. Last evening, I attended not only my NYU alumni event and got to share memories with Penny Asbell—and I was looking for some of my fellow residents there—but I also decided to go to the Mass Eye and Ear alumni event because Claes Dohlman is an old friend and he and I were colleagues on the Keratoprosthesis Study years ago before it was mainstreamed into ophthalmology. So I look forward to the fellowship. As educators, you know, we're getting education CMEs every week at grand rounds, but the AAO is an extraordinary opportunity to stay abreast of current breakthroughs, take the courses and see friends, that's my recollection.

And one of the best ones was in 1978 when we had an International Congress of Ophthalmology associated with the Academy meeting. I was fortunate enough to be in the group of ophthalmologists that were invited to Japan for that meeting. There I was with Bruce Spivey, Brad Straatsma, Irv Leopold, Ed Maumenee, and it was an amazing meeting that we had in Kyoto, Japan. Because these were the major ophthalmic leaders throughout the United States and because of the special relationship with the Asia Pacific Academy of Ophthalmology we were able to have this trip just as the door was being opened. So that was an extraordinary trip.

EVE: How did you feel when you connected with ophthalmologists outside of the country?

PATRICIA: Well, I have always been an internationalist, *citoyen du monde*, and I think that's because of family upbringing. My father, in addition to being an entrepreneur, having a radio/TV shop, writing for a newspaper, and being a pioneer with the IRT Subway, he also was a merchant seaman and would bring some of his friends into our household throughout the years. He loved art and would also bring art and artifacts from Sweden, Africa, Brazil—all the major seaports. And so we were always exposed to people of different cultures, different countries, and it's something that was very natural for me.

EVE: One of the things that I've enjoyed as I've traveled internationally is the feeling that other ophthalmologists are part of my extended family. There is an instant connectedness. In fact, my husband is also considered part of the extended family. My colleagues often ask about him. And so whether

it's going to Japan, because I also have been to Kyoto, which is a beautiful, beautiful city, as well as Tokyo, or Hong Kong, or Finland, or South Africa, there's always this opportunity to really connect on a level that you cannot connect with just another physician. So when I talk to in my internal medicine friends, I don't think they have that same closeness that we have in ophthalmology because we are such a smaller component of medicine, we can be a bit closer to each other.

PATRICIA: And I think it has to do with being surgeons, which, after all, we are, and I felt that same camaraderie during my sabbatical which I hopped from Paris to Oxford, England to Berlin, and found welcome, found a party, found friends and, most importantly, found a connection with the research community there.

EVE: Well, great. There's another question here they would like us to answer, and that is, 'How have you been involved with the Academy?'

PATRICIA: Okay, why don't you?

EVE: Okay. Well, I had a chance to be part of the Board of Trustees. And I think it was still early on in the Academy's experience of bringing in individuals, particularly younger ophthalmologists. I was a member at large and not necessarily one of the good old boys, obviously, but I think that others have followed behind me. I actually followed Marilyn Miller, who's a pediatric ophthalmologist at University of Illinois. So I do believe that it was a rich experience and gave me my first education related to governance and the politics of boards.

I have other boards on my list now— I'm on the Harvard Board of Overseers, the MIT Corporation, the Defense Health Board, Research to Prevent Blindness Scientific Advisory Board, and the Archives of Ophthalmology Editorial Board. I've continued on this path that was started with my experience with the American Academy of Ophthalmology. I have the Academy to thank for this path of being involved in governance of organizations.

PATRICIA: Well, congratulations. I have had a different path. My path and passion has been the research lab and the operating room. My path has been away from administrative responsibilities and more often I find myself in the lab trying to pose a question and then answer the question with the

tools of science. So I have not had a lot of formal involvement with the Academy.

EVE: One of the things that we've talked about in our conversations leading to today had to do with some of the challenges in ophthalmology and your interest in the community, as well as healthcare, in general. So what are some thoughts that you would like to share regarding where we are compared to your paper in the 1970s, as it relates to the burden of blindness in the community?

PATRICIA: Well, the problem has not gotten better as we look upon those groups at risk. And that's unfortunate. However, I will say that I am encouraged that technology can reach these unreached, never reached, underserved people. It will require more diligence and more compassion on the part of leadership, people like yourself, to direct resources towards these groups. That has not been done before. As I discovered early on in my community ophthalmology programs in Los Angeles, when I tried to reach the groups in Watts, not those who were in Beverly Hills or Westwood, but those who were in Watts. When I would contact the major organizations for help and they explained to me that they get volunteers from the community; that I should try and get volunteers from the community of Watts. While I did not laugh at that suggestion, I was puzzled that they didn't understand how an unwed mother of six who was on food stamps could not volunteer. However, I think, as I said, that technology, because it can be cost-effective, can reach these people. For example, it's possible to do vision screenings by TV with a calibrated screen or the iPad; having a calibrated visual test on the iPad and an on-the-go network within the communities so that visual data can be shared with a local center. There is also a new tonometer that is on the market. I think it's called iCare. And it does not require drops, it's handheld, it automatically syncs with a device that can transmit the data to a health provider or a center. So I think, in using technology to identify those people at risk, using technology to educate these people at risk through educational apps, I think that will be the solution, because, as you know, the costs of healthcare for the haves is becoming a national political issue, and the have-nots have never had it.

EVE: I agree with you that technology is certainly one important tool. But one of the things that really troubles me is just our challenges related to the social determinants of health. Those determinants that impact access to care, the education of our populations. The drop-out rate for kids in high school is enormous these days, particularly high school students of color. So I feel

as if, in some ways, America continues to slip in the education of its population, if you will, because we haven't grappled the major challenges of achieving and maintaining excellence in education.

So, how do we solve this? The challenges our country faces in education will take longer than this conversation to review. However, we do have opportunities in professional education that we can maximize. Inter-professional education of health professionals is a key driver for successful team based care of patients across the care continuum. We need to have our physician colleagues in the house of medicine, as well as the nurse practitioners and others, helping us to remind people to get their eyes checked, to continue to take the medication that they're supposed to take. But I think it's going to take, as you said earlier, a village, if you will, to wrap around these issues.

So, you know, health disparities is a major issue that will continue to be very costly for America unless we start looking at the fundamental underpinnings of the social determinates of health.

PATRICIA: And I would like to connect the thread that we developed at the beginning. At the beginning you and I both talked about how important education was in terms of our common family values. And here we are at the end, and we realize that health education is basic. And then how do we get more providers? How do we pass the torch? The answer is also education. Not only do I agree with you that the educational world rankings of the United States has fallen, but our President has stated this many times. And now we have a concept, we have a policy, 'Education Nation,' because the United States is the 25th in the world standings in terms of math education, 17th in science, and 14th in reading. How did that happen on our watch?

So I am one of the advocates for the national program called STEM, Science, Technology, Engineering, and Math. And whenever I can I try and volunteer, and try and go to a school and inspire kids to choose careers in STEM. In addition, I have developed an educational app that will be a STEM app for the iPad, because, as we know, the textbooks that our current generation all revere may be going the way of the 45's, the 78's and the cassette tape.

EVE: Well, it all comes back to education. So I think it's very appropriate that we end where we began. Hopefully either our next President of the

United States or in President Obama's second term, there will be the opportunity to put some additional resources into our educational system here in America because it is a core issue.

PATRICIA: Yes, I agree. STEM education is a priority.

EVE: I agree, Patricia, it is an extraordinary honor to share our stories. The AAO has always been committed to excellence in education and thus it is appropriate that we have both emphasized this point in our conversation today.

PATRICIA: Eve, those are my sentiments exactly. I think we should close by thanking the Academy for having the wisdom to choose two women who have overcome obstacles to pioneer in different fields and, in doing so, have left a legacy of accomplishments to inspire the next generation.

[END PART II]