

**Charles L. Schepens Oral History Interview**  
**Conducted by: Edward McManus**  
**November 7, 2004**

- Mr. McManus: We're in Boston and we're talking about Dr. Schepens first recollections of working with the NEI and first was with the National Advisory Eye Council (NAEC) which was probably the mid 70s because it was...I think that one of the first projects that came up during that time. It was the vitrectomy clinical trial.
- Dr. Schepens: Yes, that's correct.
- Mr. McManus: And do you remember? I remember you and Bill Raub did some preliminary sections and there was some question about the feasibility of that study.
- Dr. Schepens: Yeah that's true. There was... I don't remember the details of the reason why they questioned the feasibility.
- Mr. McManus: Well, it was the first surgical clinical trial that the NEI was ever going to do. I mean the laser study was different. This was a kind of a—and I can remember sitting in conference hearing you say that surgical clinical trials were very different because in each person's hands the instruments can come out with a different result. It's not like taking a medicine or even laser which can perhaps give doubt.
- Dr. Schepens: Of course, of course. It's always more difficult to have an even starting point because surgeons are different. Surgeons are not like pills, they're different and that difference has to be accounted for. Some doing the same thing will be successful others doing an identical thing may not be.
- Mr. McManus: And you had some people here who were doing very specialized vitrectomy surgery at that time, didn't you?
- Dr. Schepens: Yes, because you were interested in developing a highly specialized machine. Dr. Tolentino was the actual worker with this. You see, I was in touch with a man whose name I don't remember who lived in New York. He was an attorney and I think he sent me his idea of obtaining samples from kidney, from liver through simple instruments. And it's from that the idea of vitrectomy came. And we worked with it and we developed machines with which we were actually doing vitrectomy. What made the real step forward is something that an eye surgeon did in California and he had the idea that had the machine that was sucking out the vitreous and rotating slowing and cutting each time it rotated. But he had the idea that we could have a better machine that was very simple and that was rotating fast. And actually the fast rotation through a tiny hole was real progress and that's the way the vitrectomy machines work today.
- Mr. McManus: Yeah talking about a machine like that I remember one of the things that you got Carl and I interested in and you were probably more internationally oriented and one of the first major ophthalmologists interested in the international arena. A lot of people, like Charlie Hu [sp?], from Beijing came through here. There were some from India and I'm sure you know about others. The ones that I have come across have mentioned how great an

experience were those two in particular. But you had, with some others, developed a cutting device like what you described that we tried to use for cataract in India. Do you remember that?

Dr. Schepens: Yes, yes absolutely.

Mr. McManus: And I was talking to someone the other day one of my assistants and they asked did I ever remember the NEI being able to try and move fast and come up support research ideas quickly, you know, by a contract or something like that and I said yeah, we used to do that with all sorts of things, and we did that on that particular cataract surgical device.

Dr. Schepens: The original idea was from a guy from Ohio whose name I forget.

Mr. McManus: Yes, I know and I know exactly who it was because Raub was also involved with that. I remember him, I can see him, but I can't remember his name.

Dr. Schepens: He found a similar principle could be used to remove the lens and we tried. Massachusetts Eye was involved in this.

Mr. McManus: Exactly. He was from the Cleveland.

Dr. Schepens: The technicians of Mass Eye and Ear developed a little machine which we tried. We had a huge problem which I must tell you. When we got to India I got a telephone call from Carl in Washington and he said you cannot do this without having them sign that they're willing to go through a new procedure. I said, "But Carl, they don't understand English." And he said, "Don't worry, just let them have a translator," which we did. And we passed on a translated form on cataract surgery and they took half a day to decide whether to sign it or not. And at the end of the half day, they came back to us and said you know, "We're sorry we don't think we can sign this." And Nam [sp?] said, "Why not?" And they said, "Because we're afraid we may lose our lives if we sign this." They did not have the education.

Mr. McManus: Well, you know, now that you mention that and that's something that we have to think about how we're going to handle it in the book because that was the first formal collaboration that the NEI had with NASA and those kind of collaborations have grown quite a bit. But that was the first of many where their engineering capabilities were combined with our research capability. The latest ones involve cataract instruments. The cataract themselves are actually penetrated so that one can look at the retina. It's pretty interesting stuff but it didn't work out. So, what were your—there were several clinical trials done that came after vitrectomy, the diabetic retinopathy study followed by the macular edema study and like that—were you involved in those?

Dr. Schepens: The macular edema, no but the diabetic retinopathy, yes. I can't recall the beginning of it. Can you?

Mr. McManus: Well, Rick Ferris and Larry Rand were the principals from NEI, and Larry still practices somewhere around Boston, I think, but they were the ones that were in it. With that study, we were able to stop that pretty quickly because the results showed that even from a broader set of eligible patients the laser treatment worked.

Dr. Schepens: I must tell you something about that that maybe it was not part of that.

Mr. McManus: I know, but that's why I'm asking you.

Dr. Schepens: When we started the diabetic study the regulations said that the preference had to be given to American instruments. But the NEI decided that it should be the foreign laser for some technical reasons. So they were using blue lights because blue was easiest to produce at the time. And there was a lot of it that had been sponsored by NEI and that had been done by Sperling.

Mr. McManus: Yeah, from down in Texas.

Dr. Schepens: Texas. Showing the toxicity of blue lights on the retina that in the process of who knows everything that everybody does. So Carl and his cohorts couldn't remember that work of Sperling but it so happened that in Boston there was a little firm called Mira who had produced a green light so they put together to find that it was an American instrument and it was green whereas blue was toxic to demonstrate to NEI that they should use green light. And what happened is that at the time that happened they looked at the data in the study and found that it was positive, it worked. So they stopped the program saying look we have positive results so they didn't have to go into the business of green versus blue.

Mr. McManus: Harry Sperling.

Dr. Schepens: Harry Sperling, I haven't heard of that name in recent years. That was a happy ending of that and I think that was the first bit of work done with diabetic retinopathy.

Mr. McManus: It was. You know when you were on Council in the mid 70's I think you were on with Alan Laties.

Dr. Schepens: Alan Laties. He came on at the end of August.

Mr. McManus: How about Dick O'Conner, was he there?

Dr. Schepens: Yes, of course.

Mr. McManus: Kaufman? Herb Kaufman came by later, I guess.

Dr. Schepens: O'Conner I remember very well.

Mr. McManus: But that was a pretty activist Council.

Dr. Schepens: Very activist. Maumenee was there.

Mr. McManus: Maumenee was there. In my memory, maybe it was maybe the strongest that we had. Do you have any recollections about that? I mean I guess one of the reasons was that you and Maumenee and Dick and guys like Harry Sperling were all there. That was a good group.

Dr. Schepens: It was good because they didn't mind telling you what they thought regardless of what Carl thought.

Mr. McManus: That's right. Carl was like that—he would listen to you if you spoke up.

Dr. Schepens: We had the impression right or wrong that NEI as a body liked to have ‘yes’ people. Because then they had no discussion and when it was over it was quickly finished. But Maumenee, O’Conner, and a few others...

Mr. McManus: And yourself.

Dr. Schepens: Just had to tell you what they thought.

Mr. McManus: I felt that it was fascinating for me sitting on the sidelines to watch, and I thought it was great, and I know Carl appreciated it to.

Dr. Schepens: But you know you’d have to have my memory. At one time I had to review a request for five years of support by a woman who lived in North Carolina or South Carolina, I don’t know and her first name was Rosalie, I don’t remember her last name.

Mr. McManus: Was it Crouch?

Dr. Schepens: It could be. I saved her grant at the time because I had read it extensively and she had been turned down and the Council reviewed it and she was approved so she had her first five year approval. And I’ve never heard about her or from her or never met her later and I wonder what happened to her.

Mr. McManus: I’ll make a note to check up on her I think it was Rosalie Crouch and I think she went on to do okay. Yeah, because I remember her name and I wouldn’t have remembered her otherwise. But that was interesting because it was that Council or those Councils that you were on and I’m trying to write a section about planning and high program relevance and the Council’s activism and how that really added a dimension to the Institute. And I think that this is a really good anecdote for how it kind of worked. You saw a grant and it looked really promising, the rest of NIH, the way the institutes were, the Councils were rubber-stamps. And that’s the way you thought we operated because that’s the way we were told. Council comes in and rubber-stamps everything, but we had decided that we were going to have this high program relevance. And we started bringing grants up—council members started bringing grants up and we had pretty good debates and I think some solid things were done. And I’m going to try and pick out two or three or four of these examples and I’ll look at this one where Council maybe picked a grant out gave it high program relevance and we funded it where it wouldn’t have been funded and then what happened to it?

Dr. Schepens: Yeah, that’s right.

Mr. McManus: I hope good things happened to it. Because otherwise...

Dr. Schepens: That gave that girl her start.

Mr. McManus: Otherwise you’d be the best plan in history.

Dr. Schepens: That’s right.

Mr. McManus: Let me ask you another thing, were you involved in the Council planning process? The plans the Council did with the NEI, the five-year plan?

Dr. Schepens: Yes.

Mr. McManus: Do you have any recollections of that and whether or not there were areas of science that you tried to promote in the plans? I'll give you a lead-in because I know that when you look back at the history which I've looked at all the Council minutes for the past 30 years and there always was discussion about clinical research as a priority area for the NEI. We've got to make clinical research a priority area.

Dr. Schepens: I think yes and I think more so now than ever. Because you know, whether you like it or not there is a constant antagonism between the Ph.D. in science and the M.D. in clinical work. You know? They're two different types of individuals. The clinical scientist is an introvert he has to think and know and he doesn't like too much interference.

Mr. McManus: Too many variables. He tries to keep the variables to a minimum.

Dr. Schepens: That's right. Let's face it. He's not interested in patients. He's interested in problems. He wants to take stem cells, now how can I make a tissue with stem cells—that's a huge problem. He likes that. But whether it's going to help Mr. X or Mr. Z he could care less because he doesn't know them or have never heard of them. The doctor is interested in his patient of yesterday I wish I could help Mr. So-in-so, you know and now I wish I could devise a little something. Forget the stem cells because that's for her great grandchildren, but how about this patient I saw yesterday or the day before, how can I help her or him? They have different outlooks, different goals they're in a totally different phase. That in fact one should serve as the root that nourishes the tree that will grow and save patients. But the route is in basic science. But there are very few people who understand that transition—very few.

Mr. McManus: And I, you know—those are the arguments that you and Maumenee and Dick made all those years you were on the Council and that were very well made and well try to capture some of that in our book. Because that was a priority—clinical research was a priority area in plans from '74 till the late '80s. It was just a priority right through. And probably there's good and bad to that as it had to keep on being a priority because it wasn't a priority if you know what I mean. It was priority words at first but not in action and then I think later on it became more of a reality. The funds research increased in the late '70s early '80s because of the Friends of Eye Research. They were the main stay political support of the NEI and were the reason that NEI did fairly well in the budgetary process. And you were very instrumental in establishing the Friends, right? You established it helped to organize it and I think you were the President?

Dr. Schepens: It gets really...

Mr. McManus: Was Brotman involved?

Dr. Schepens: Oh, yes, yes—I drew a blank for a moment.

Mr. McManus: I understand.

Dr. Schepens: Now Brotman [sp?] I remember. Brotman was a fellow from this area and became my patient. He had congenital abnormality in his eyes and he was very steady in his desire to promote the friends of eye research, and he did fairly well with them. Of course he was

handicapped. He was somewhat shy about—he had only very bad vision. I don't know how he traveled, but he did. And he did go to the hotel and check out, check in, check out and all that stuff alone. He was active for a number of years. I complimented him on that.

Mr. McManus: It was a number of years and funding was always a problem for them. The Academy and others wouldn't support them the way they probably should have. But Friends of Eye Research was really successful, you know. I started the Alliance for Eye and Vision Eye Research, well Steve Ryan started it but I helped him with the idea ten years ago. But it was patterned right after the Friends of Eye Research. I mean we would never have had the Alliance if it were not for the Friends, so I mean that was a great contribution you made in doing that. The one thing that we did do with Alliance for Eye and Vision Research (AEVR) was to make sure that the Academy, and ARVO, and others paid in, like ARVO pays \$100,000 a year for the AEVR and the overall budget is around \$400,000.

Dr. Schepens: Fantastic.

Mr. McManus: But we would have never thought of it if it hadn't been for you. So, that was a good contribution. I think Brady Metheny was also involved.

Dr. Schepens: Is he still involved?

Mr. McManus: No, but you know, that was a very interesting side story. However, this was for Brady because he became involved with Friends of Eye Research and I think that was the first thing he was doing in Washington along with something for Woods Hole. He was representing Woods Hole and so maybe that really was the eye connection that brought him to you. Then he started that newsletter, the *Fax Newsletter* [?] which he then sold to somebody for big money but that *Fax Newsletter* [?] has been very instrumental and I think has been a great communication device to support the National Institutes of Health (NIH).

Dr. Schepens: Yes, yes. You know Brady was a guy who had ideas, but he wasn't too much down to earth, you know? Money to him was always a problem. He didn't know how to raise it and he always caused them a lot of headaches. Personally, and for what he tried to accomplish.

Mr. McManus: I think he sold his newsletter for a pretty good price though.

Dr. Schepens: He did huh?

Mr. McManus: And then he—and now he runs it. It's owned by the people who—have you ever heard of the Pink Sheets and the Blue Sheets? It's a major publishing company who handles all of that and that's who he sold the newsletter to.. And then he's an editor so he kept his old job but then he capitalized off of it. I saw him the other day. He was by my office at the Library of Medicine.

Dr. Schepens: Is that right?

Mr. McManus: Yes, but the point I was trying to make is I think that that connection back in the eye field got him started was a major contribution for the NIH because it was a communication device for all of the supporters of the NIH.

Dr. Schepens: It's too bad though because he was unable to control himself health wise. He as overweight and each time I saw him I tried to shake him up, but he just couldn't do it.

Mr. McManus: Yes, yes. He had some bad health problems.

Dr. Schepens: He just couldn't do it. He was overweight.

Mr. McManus: What do you think have been the major scientific achievements within the NEI?

Dr. Schepens: I think the major scientific accomplishments for the NEI is to have given a substantial push to basic research and then make a try to unite the two aspects, basic and clinical. They gave a push to basic and then made the effort to have the basic speak to the clinical. You know. I think those are sort of double accomplishments.

Mr. McManus: You were here in the '50s and '60s when there wasn't much going on in vision research. There was Hartline and Wald and maybe Hubel and Wiesel over in the basement of Harvard doing some stuff but that was about it. Now we were at the 25th anniversary of the NEI about seven or eight years ago and about a 1,000 or so researchers over in that Boston Science Center which was really impressive.... What do you think about all that growth?

Dr. Schepens: I think it was impressive in my small world it's exemplifying the success of the Eye research institute. You know they've grown from 1960 with a grant (the NEI didn't exist), from NIH for \$6,000. When I established the Eye Research Foundation, it was a move of disgruntled scientists from among the Mass Eye and Ear Infirmary that wasn't doing anything, you know? And they practically expelled me because in a nice way they said we had to design a program with the Veterans Administration in which the Director of the hospital signed that we had the space for this program and when the money was given they said we don't have the space. So I said to them you'll have trouble with the federal government. You've signed we did have the space. So they thought about it and said we'll help you to get space but really they didn't help but they...

Mr. McManus: Went through the motions?

Dr. Schepens: It went through the motions but they didn't help. But that was the birth of the Retina Foundation. What really gave it birth was the NEI when they supported research in the vitreous. You know there was nothing going on in the vitreous. And uh, I recruited somebody from Sweden, Dr. Balaz and Dr. Balaz recruited somebody else...

Mr. McManus: Dr. Balaz was with you?

Dr. Schepens: Yes.

Mr. McManus: He's the discoverer of the solution used in lens implant operations. I remember him well.

Dr. Schepens: Yes, I recruited him from Sweden and my wife gave me hell because I went to a meeting in Holland, mid way between Belgium and Sweden you see. And she said you recruited

him? You're going to pay him and you only saw him for two hours you must be crazy. But it worked out. And uh, it would have gone completely zero if it hadn't been for the NEI. You see the NEI had support at the time from people like—who was the guy who was an instructor at the Massachusetts General Hospital who got the Nobel Prize while he was still an instructor. And then he quickly moved to the Rockefeller Institute and directed it.

Mr. McManus:

Wiesel?

Dr. Schepens:

No, no not Torsten.

Mr. McManus:

Torsten Wiesel.

Dr. Schepens:

No, no.

Mr. McManus:

Uhhh, Hartline? No? I can't recall.

Dr. Schepens:

Well, anyway he supported the effort of Balaz. Balaz got a little NEI support, and then he got a little more. Then one day they gave six people a thousand—a big victory you know? Tremendous!

Mr. McManus:

Yeah, \$100,000 in support.

Dr. Schepens:

Oh sure. But this group, you know—year by year when I left the Eye Institute had an 11 million—11 million budget.

Mr. McManus:

What year was that?

Dr. Schepens:

That was '91. Now they have in the twenties?

Mr. McManus:

The doubling of the budget of NIH. I told them. I told those guys when we double the budget of the NIH everybody who's sitting there with existing capacity is maybe almost going to triple. Cause where else is the money going to go? You don't have the people and it's got to go to the existing people, so yeah, they're probably up around 25 million.

Dr. Schepens:

That's right. That's right. So, this is—thanks to NEI. All you had to do was to be active. Once you were active they would support you. You know?

Mr. McManus:

Well, thanks to you guys who set up the vehicles to make it possible. I remember how at the beginning we had to support a lot of sensory motor research which was very controversial, but it was good strategy. People like Herb Kaufman wanted to get rid of the support for these guys but we had to fund the sensory motor scientists because these were the only ones who had grants in the system. So I said hey, well support them for a few years so that we could use up our money. It doesn't matter. Then after we could get other people to submit grants in the other areas that are priority then we could shift the money over, which we did. Well we had to do that.

Dr. Schepens:

That was very smart.

Mr. McManus:

Yeah, well it was controversial because with Maumenee and all those clinicians I don't think you were involved—they said, hey we want to support clinical research. But we've

got to spend the money today, so spend it on these guys. You get clinical researchers in and we'll pay them. Then you started boosting your program up. Maumenee started recruiting people over to his place and a few other departments of ophthalmology did and along with others, I think the International Ophthalmology, Ophthalmology, the American Academy of Ophthalmology, I think it all went up because of the National Eye Institute.

Dr. Schepens: Oh sure. That is truthful. Absolutely true. They were by far, the biggest supporters of eye research by far.

Mr. McManus: Being able to compete in our research made ophthalmology more legitimate.

Dr. Schepens: Yes.

Mr. McManus: I think it really did.

Dr. Schepens: No question about that.

Mr. McManus: Those basically were the points I wanted to make. Were there any other points that you wanted to make?

Dr. Schepens: I haven't thought about it. I don't think so. I think that you touched on the most important points.

Mr. McManus: How about for the future? Do you think that there will be things—like now that the base is there, is beginning to be there. Do you think that there will be things like gene modifications or retinitis pigmentosa or other things like that?

Dr. Schepens: I think it will be a long time. You know why? Researchers all talk about this gene causes. That is not true. This gene predisposes to that! This is proven by identical twins. One gets macular degeneration, the other doesn't. Why? Because the other, he was also predisposed but the additional conditions to get the disease didn't occur.

Mr. McManus: Nutrition and so forth. I remember when Joram Piatogorsky found that one gene, and I forget what it was, also served as a protein. We want to modify that gene? I mean if it's a protein it should have some other use. It's a very, very complicated...

Dr. Schepens: It's extremely complicated. And you know that there is now the body of knowledge that, is a known body of knowledge of the 19th century that comes to the front again. It's the old concept of infections, because the many conditions like macular degeneration, glaucoma which effect the predisposed individual. But the trigger could be an old infection.

Mr. McManus: Heart disease, maybe Alzheimer's?

Dr. Schepens: Yes, yes.

Mr. McManus: Yeah, I've heard that concerning macular degeneration before. That makes sense. Because I know it takes—half of our heart disease is caused by inflammation; it may be started by some kind of virus.

Dr. Schepens: But that's an old notion that dates to the 1870s that comes to the foreground.

Mr. McManus: I know one of the things that you supported and one of the battles that Carl had for years and years and years and still hasn't won yet is to get more immunologists into vision. And Art Silverstein got started first and then we started Bob's lab, Nussenblatt at the NEI but we still don't have enough.

Dr. Schepens: That's right. Well, immunology is a very complex thing of which we know much too little.

Mr. McManus: But the clinical field to a certain extent which is nice, you know a lot of clinicians which are at least interested, but there are a lot of good Ph.D.s.,.

Dr. Schepens: What do you think of the influence of the drug firms on research?

Mr. McManus: Well, I was a big advocate for it and it's the old story. In my hands as the surgeons say, "It was okay." But people aren't all the same and some people have a hard time handling it and the drug companies run all over them. And I know one of the experiences I had that I never could explain until recently was that some drug companies didn't want to work with me—or us, the NEI and I could never understand why because as far as I was concerned it was in their best interest. I still think it was. But they didn't because they wanted to hide what they were doing and I think it was short sighted of them because I think they're better off to know all the bad things as well as the good things and then they don't face a \$28 million-dollar liability like Merck does with Vioxx. But I think working with drug companies is okay but it has to be very scientific and has to be done very carefully and very tight and that is difficult for them because they have a different culture. They are secretive and wanted to hide things and that's not good business cause look what's going to happen to Merck. It's good short-range business maybe for the few guys that are going to make something, but not good long-range business for the company.

Dr. Schepens: But you know on the other hand too many clinicians try to make a bundle of money through their connection with a drug firm like that, and I think that's...

Mr. McManus: I don't think that any individual should do it. I think it's okay if you do it with an institution as a cover. Say like Harvard has a guy and they have lawyers and they have people to write right agreements to oversee what you're doing. I think its okay with the NEI because we have the whole government thing. In fact, if I were an institution I don't think I would do it with the drug company unless I dealt with the government also in our field that would be the NEI.

Dr. Schepens: But you know when there is a bundle of money there available, there are always people who are going to be tempted.

Mr. McManus: So, I'm a lot more cautious about it than I was probably 10 years ago. And I still think there's a place for a very, very selective, under tight control collaboration conducted after seeing what I've seen, I still think its not reasonable that these companies should be so secretive and want to hide this stuff. But I guess for the short run some people make big money then they leave. The stocks are run up and, the stock options given and that's too bad. Until that changes and they're looking out for the long-range fate of their companies...

Dr. Schepens: You know at the recent AAO, there was a guy whom I'm not going to name who said at the meeting in front of lots of people there, that this drug has just been approved. So the reporters who were at the back of the meeting quickly went to the telephone to call New York that it has been approved. The next morning the clinician said, there has been an error and it hasn't been approved.

Mr. McManus: Stock market went up?

Dr. Schepens: They make quick money, you know?

Mr. McManus: That's terrible. I think there can be collaborations but it's got to go through institutions, nothing to be done with individuals. Individuals should not be able to sign agreements with anybody. Then you can't say a word unless your institution clears it and uh...okay.

Dr. Schepens: That's a good point. I appreciate your advice.

Mr. McManus: All right Dr. Schepens, thank you very much.

Dr. Schepens: Listen. It was a pleasure to see you.

Mr. McManus: Well, it's much more of a pleasure for me

Dr. Schepens: You still play tennis?

Mr. McManus: Sure.

*End of Transcript*