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## Interview with Paul Fischer, Professor of Chemistry

Paul Fischer

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Macalester College Archives, DeWitt Wallace Library

*Oral History Project*

**Interview with:** **Paul Fischer**  
Professor of Chemistry, 2001-current; received tenure 2007

**Date:** **Tuesday, May 22<sup>nd</sup>, 2007, 9:00a.m.**

Place: Macalester College DeWitt Wallace Library, Harmon Room  
Interviewer: Laura Zeccardi, Class of 2007

Edited interview run time: 52:45 minutes

Accession: 2007-12-21-12

Agreement: Signed, on file, no restrictions

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**Interview with Paul Fischer**

**Laura Zeccardi, Interviewer**

**May 22, 2007  
Macalester College  
DeWitt Wallace Library  
Harmon Room**

LZ: My name is Laura Zeccardi and I'm a new graduate of Macalester College conducting interviews for the Macalester Oral History Project. Today is Tuesday May 22<sup>nd</sup>, 2007 and I'm interviewing Paul Fischer, Professor of Chemistry in the Harmon Room in the DeWitt Wallace Library. You can just start by stating your name, and where you born, and how old you were when you first came to Macalester.

PF: So my name is Paul Fischer, and I was born in New Ulm, Minnesota, a small rural community in the Southern part of the state. When I came to Macalester, that was 2001, I would have been thirty-one.

LZ: What is your educational background and what were you doing prior to coming to Macalester?

PF: Educational background? I grew up in New Ulm, Minnesota. I went to public schools in New Ulm. And then I went to the University of Minnesota for my undergraduate degree. I got a BS degree in chemistry in 1993. And then I went immediately to graduate school in chemistry. So I started in the Fall of '93, and I took five years to get my PhD. So I was at the University of

Minnesota for nine years consecutively for those two degrees. From there, I taught at St. Olaf College in Northfield for three years, to kind of get some experience with small liberal arts college teaching. Because I really, as I mentioned, I had no experience at all at small liberal arts colleges. And since I thought I wanted to go that direction for a career, I wanted to test the waters and see how I would fit in that environment, since I had never experienced it myself. I taught at St. Olaf for three years. And actually, during my second and third year at St. Olaf I did searching for tenure track positions—because I was at St. Olaf in a visiting position—and then in my third year at St. Olaf I landed the job at Macalester.

[01:49]

LZ: What led you to go into the field of chemistry?

PF: Well, I guess from a very young age I really liked science. I was in a lot of science fairs starting in fourth grade, really fourth grade through tenth grade I was in science fairs. I went to the state science fair a couple times, and really enjoyed thinking about experimentation. I also had some really excellent teachers in science along the way, especially at the junior high level. I had an excellent person in ninth grade that really propelled me more specifically into chemistry. Really due to just excitement I had in that particular course. And I was kind of a rare person in high school that I took chemistry right away as a sophomore. Most people waited until they were seniors to take chemistry, but I wanted it as quickly as possible. So I took it as a sophomore, and that further kind of propelled me into chemistry. So, when I came to the University of Minnesota in 1989 as an undergraduate, I had declared a chemistry major in the first quarter. I never turned back from that decision—it was the best decision I ever made.

Chemistry is a great field for me.

[02:54]

LZ: What was the hiring process like? You had said you were seeking a tenure track position. What was that like?

PF: Yeah, the hiring process is actually quite stressful because, if you think about it...well within chemistry there are different specialty areas. And I'm an inorganic chemist. There's organic, analytical, physical, biochemical, different areas. And generally speaking, at a small liberal arts college, there might be just one position for an inorganic chemist. So essentially for my field there's one person per small liberal arts college. And there's not that many small liberal arts colleges. So it's actually quite challenging, not only find a position, but also find a position that is kind of suitable for you—where you want to grow and develop—and also if you have a preference in kind of geographical location, it's even a greater challenge for all of those things to coincide. So actually, I was really fortunate in terms of how it fell together for me. In my second year at St. Olaf I had a number of different interviews at different schools, and none of them panned out for various reasons. And then St. Olaf renewed me for a third year. And then in the third year I had a series of interviews as well in the Fall, and I had applied to Macalester as well. And also, none of the earlier interviews panned out either. I remember being home over Christmas break, wondering where am I going with this, what's going to happen. I had pretty much thought that the Macalester application was pretty much over because I hadn't heard from them in such a long time. And then I got back after Christmas break and I got a phone call in January that the position was still open. And so I remember interviewing in January. I only slept

three hours the night before, I was so nervous about the interview. Because the position was in Minnesota—it was the only job that I'd interviewed for in my home state, of all the jobs I'd interviewed for. Plus it was really was what I wanted in terms of the size of the small college. And so I was really full of adrenaline. I remember driving up here from Northfield and hoping it would go well. It was kind of odd, because when I interviewed school wasn't in session, so there were no students on campus. There was only one student at my interview presentation. They kind of roped someone into coming it. It was pretty much just faculty, so it was kind of an interesting experience when I interviewed, you know, being in January. So it all worked out.

[05:14]

LZ: Had you heard about Macalester, were you familiar with Macalester before you applied?

PF: Yes and no. I certainly knew about the institution. But I had never been on campus until I interviewed. And it was kind of ironic because when I was a second year graduate student, my teaching mentor at the U of M—kind of my boss when I was a teaching assistant—she was telling me about where might be a good fit for me in terms of my career. And she was the first person that mentioned to me small liberal arts colleges. And I basically said, “well that sounds good to me, but I don't really know what that is”—I'd never experienced one. It turned out that this person had taught at Macalester for one year. And so the very first liberal arts college that I really was told about was Macalester. It's incredibly ironic that I ended up here, later on in my life. I guess it's amazing. So I had never visited the campus until I actually set foot here for the interview.

[06:11]

LZ: What was that like going from such a huge school like the U of M to a place like Macalester and St. Olaf?

PF: Well, it was really amazing seeing the difference. At the U of M, which was all I knew, there was very little interaction between students and faculty members. Actually, for the most part, I put my faculty members on a pedestal. I felt that I was kind of this low meager person, they were this expert, and I was getting as much as I could from them. But there wasn't really much give and take. It was more of just taking from what they knew. And it wasn't really a part of the culture, at least in the sciences, to actually go to office hours. Faculty had office hours, but people just didn't go to them. I don't know, it just wasn't part of the culture. Most students, if they had questions, would go to the graduate students—the TA's—and ask questions of them. So that was kind of my mode of operation. There are pluses and minuses because at the U, since it was that way, it forced me to learn a lot on my own. So I gained a lot of self-reliance in learning. I really didn't have a lot of help, so I kind of just had to do it on my own, and spend a lot of hours in the library, independently learning. Then I went to St. Olaf and I realized what it can be like, where you have a lot of give and take with faculty members. And there's a kind of culture of going to office hours and getting assistance. And so, certainly, looking back on it now, I would have had a very different experience if I would have gone to a small liberal arts college. But I mean, I still got to the same destination by both paths. Sometimes I think that at a small school the activation barrier is so low to get help. There's so much help available that I think sometimes that can kind of perturb attempts at self reliance. Because in the real world usually you have to tackle problems independently. Or if you're working in a group on a

problem, you don't necessarily have an expert that has all the answers. You have to kind of ferret it through yourself. So there are kind of plusses and minuses that way. But definitely at the U, you're kind of on your own, for most of your learning and things like that.

[08:19]

LZ: What was your first impression of the students, both in terms of the overall general student body, but also specifically the Chemistry Department?

PF: I had an interesting time, because my very first week of classes was 9/11. So that event really dramatically colored my first semester at Macalester. Classes were cancelled that day. That was my very first day at one of the lab courses that I teach. And so the emotions on campus were relatively somber during my first semester. It definitely impacted my initial impression of Macalester. But overall, you're asking about the students, impression of the students?

LZ: Yeah, kind of what your first impression of the students was...how they maybe compared to the students at St. Olaf, or other people you had been with at the U of M...

PF: Yeah, I think at St. Olaf, the comparison between here and St. Olaf is that the students here have kind of wider...a wider array of interests. Or, kind of a wider agenda. At St. Olaf, even though it's a small liberal arts college, students tended to specialize a little bit more in what they were looking at academically—like within their major. I think at Macalester there are many more double majors and even triple majors, where students want to get a lot of knowledge in a lot of different areas—a lot of diversity of academics—where at St. Olaf, more students were

more focused there. One reason might be that their music program is so strong. They're kind of nationally known in music, and there were a lot of people there that were majoring, getting Bachelors of Music degrees, BM degrees. And that's incredibly specialized. So there were a lot of students with kind of point of view. And even in the sciences, most of my advisees were just chemistry majors. Where certainly, like in Olin-Rice, a lot of the students are Chemistry majors and History. And so I think that's good. I mean it's all a trade off. But since so many of our students go on to graduate school, if they choose chemistry as a career, they'll still get the additional knowledge they need if they're going to specialize down the road. I think at Macalester a large percentage of the students really take advantage of the liberal arts opportunities that are available to them, and kind of diversify their background. I also think that between St. Olaf and Macalester, I don't know how to put this best...I think students here are more assertive. Like they're more...they ask more questions, and they're more outwardly curious about areas of academics. And they're more likely to challenge you as a faculty member to support your claims, and kind of really prove it to them that you're correct. I think that at St. Olaf there's a little bit more of a passive nature, amongst the students, not that that's a bad thing. It's kind of a different personality in the student body.

[11:18]

LZ: What was kind of your impression of the Chemistry Department and other professors you were working with, and the immersion into a new college and a new department?

PF: I think Macalester professors put a huge value on their own autonomy. And so I think at Macalester, academic freedom is kind of valued above all else, among faculty. So I could

definitely detect that when I arrived. The faculty here definitely wanted to do a good job in the teaching realm, but had a very strong kind of...they really held on very strongly to their own scholarship. And really kind of defined themselves professionally based on their scholarship. Even in the language of Macalester. I remember my first week or two here, people would refer to me as the “new chemist”. Like a “new chemist” in the Department. Where, at St. Olaf College, I would have been referred to as new instructor or a new teacher. I would have been defined more educationally, or the more educational side, where here it's more disciplinary, kind of how we're defined. And I think that extends beyond just semantics. I think that faculty here are more focused on their scholarship than maybe at other places. So, it's a challenging place to be, because the priorities are high. The expectations are high, in both of these traditional realms of academia, in both teaching and in scholarship or research. Like in my area the research side in chemistry. So, I definitely detected that very early on, that, you know, teaching was important, but also it was very important to continue the momentum in your own research and your own scholarship. That was very clear to me from early on.

[13:10]

LZ: Does the Macalester chemistry department have a...any sort of reputation outside of this college or even this state? Is it, how does it kind of rank in terms of...

PF: Well I think it ranks quite highly. It's hard to quantify departments, especially at small liberal arts colleges because they're relatively small in size, with a relatively small number of faculty members. But certainly I think Macalester is growing all the time in terms of its reputation, in terms of undergraduate research opportunities, and the kind of interactions that are

going on in the department. I think that Macalester is definitely in the upper crust in terms of how much we do with students with collaborative projects, where the aim is actually to publish results in scholarly journals. I think that's where our profile is growing all the time. When I was growing up in New Ulm, Minnesota, everyone kind of put the words "excellence" and "Macalester" together. And it was regarded as being maybe the top liberal arts college in the state, I mean with all respect to Carleton. Macalester and Carleton were kind of put at equal footing, kind of within the state. And so definitely for me that was kind of intimidating when I came here. I knew about the reputation of the school, hoping that I could live up to that expectation that I'd heard about growing up. But I think that chemistry—there's kind of been a paradigm shift at the college since maybe the mid-eighties, of going to more of a research model, where collaborative research with students is getting, becoming more and more a vital part of the overall student experience that we provide. And I think as that takes hold, takes root in the department, our profile has risen a lot more, nationally.

LZ: How big is the chemistry department?

PF: Right now, currently we have five full time faculty. Starting in the Fall we'll go to six. Well, traditionally, for many years we were officially 5.5. So we talk about FTE's, full-time equivalents, so for many years we were 5.5. And we had a position that was biochemistry—it was shared fifty-fifty between Chemistry and Biology. But now there has been a move to increase the amount of biochemistry available to students at Macalester, so now chemistry has now expanded to be 6.0. So, starting this Fall we'll have a new person coming in that will be one hundred percent chemistry, within the field of biochemistry. So we'll be at six people. And

that's, I would say, for a small liberal arts college, about in the middle for department size.

[16:01]

LZ: How many majors can you generally expect to come out of one graduating class?

PF: This year we had thirteen. And I think, since I've been here, I would say the average is between ten and fifteen. One year we were in the low twenties and that was very high for us. So but, normally, this year is pretty average, like having thirteen majors.

[16:25]

LZ: What courses have you taught, and have you seen them change over time since you've been here?

PF: Yeah, most, I'm kind of teaching, I'm kind of the bookends person in the department. So I have a lot of classes for first years. So I've taught a lot of general chemistry, which was my first love. I teach that, so the first semester general chemistry, and the second semester general chemistry. And then I also teach advanced inorganic, which is my specialty area and that's the very last course for majors. So for most students at Macalester, if you're a chemistry major, you'll have me in your very first semester, and your very last semester of chemistry. Both of those courses have changed quite dramatically because of me since I've been here. Not only in terms of what is covered in lecture, but also what is covered in the laboratory components of those courses. The laboratory parts of all three of those classes, the general chemistry one and two and advanced inorganic, have all changed a great deal with many new experiments in all of

these classes. Also a different way in which students are evaluated on their laboratory work. Now in all of these courses students actually maintain laboratory notebooks, and they are graded on the quality of their notebook entries. Where in the past, it was more of reporting your own data—your collected data in a very straight forward way. Now the students have to do more writing and kind of generating their own way on presenting their results. So more models, kind of real chemistry, what chemists would have to do—document their work in a real formal way and then present it clearly, kind of making an argument as to what you believe happened within the work. So that's one thing that's changed a lot in the lab, as well as new experiments. In the advanced inorganic lab for the seniors, I have some projects that are more open ended, so the results are not necessarily clear cut at the beginning. So it's more like a research model to the project, and the project will extend over a period of weeks, you know, over the course of the semester. So it, it also is trying to model better a graduate school research experience. A lot of our majors are thinking about going that path, to kind of give them a feel for what that would be like, when you don't really know the answer, you know kind of going into uncharted territory within chemistry.

[18:47]

LZ: What is that like, having students as freshmen and then seeing them again as seniors?

PF: Oh, it's really fun. I really really like general chemistry the most. That's my favorite teaching assignment just because I really like being able to introduce students to chemistry. So, well for many of the students that I have, not only is it their very first college chemistry course, but for a lot of them it's their first college science course overall. Actually for a lot of the

students it's their first college class of all time. Because I tend to teach a lot at 8:30 a.m. And so they'll have their very first class with me. And I really take a lot of enjoyment out of that, being the first person to interact with college students about chemistry. And so I really like trying to show students why chemistry is exciting, and why it's a field worth pursuing. So I like that. Also it's a chance to try to get people hooked on chemistry as a major, because I'm forever indebted to my teachers in high school who did that for me. For me it's been a very enriching career being in chemistry. So I like to trying to be the catalyst to try to help people move in that direction. And just beyond that, also just to show how anyone can benefit from chemical knowledge. I think that chemistry does fit into the liberal arts mentality, that having chemical knowledge does enrich our lives. There's lots of places where knowing how something works at the molecular level just makes like more satisfying. And I try to point that out as much as I can in class, with kind of real world things, like understanding the weather from a chemical perspective, and what it means when you watch a forecast and hear about a dew point—what that actually, what they're talking about chemically. So, I try to bring those things in. It is fun to teach advanced inorganic because you can see how much students have grown over their time, over the four years at Macalester. That's really fun for me because I like to make connections back to the first year courses that I teach, and show how much more they can do now that they have more background. So that's really fun, to try to make those connections. I've actually tried to design advanced inorganic to make it tie into almost all of the other classes that are part of the chemistry major. So students can see that all these things come together. I think it's easy for students in courses—I think I was the same way—to kind of compartmentalize. Not only course so course, but also chapter to chapter. That was chapter ten, I'm going on to chapter eleven, we're kind of going into a new thing. But I think to be an effective chemist that's when you start

to see how things correlate, and how it kind of all blends together. And to really be effective, you have to understand things in a more global kind of sense. I try to help students make that transition in advanced inorganic, where they can see that "oh, I learned this in my second year, now I know where this fits in into a broader context." So it is fun to help them in these different stages like along the way of their development.

[21:52]

LZ: In your time here, have you felt that the faculty and the students have accepted you and that it's been a comfortable environment to be in?

PF: Oh definitely, definitely. There was definitely a transition for me, which it is for anybody that is new. I think, the first year, admittedly, I was a little bit homesick for St. Olaf in my first year just because I had... Well it's just like anything, I was there three years and you get to know a lot of people, and suddenly you don't know anybody. And you're trying to find connections with people, and trying to... And also you don't know any of the students at all, kind of thing. So it definitely takes some time for everybody to get re-acclimated to a new situation. But I definitely felt accepted from the beginning. You know it was definitely a good healthy environment to work in. So I have no complaints in that regard.

[22:41]

LZ: You recently received tenure. I guess I'm curious about what that process was like for you.

PF: Well, it's a stressful process. But, I will say that it's very clear at Macalester. There are no

ambiguities about what's expected. As a candidate for tenure, that was definitely appreciated. Even though the standards were very high, at least it was very obvious what it was. I think that when I talk to people at other schools, a lot of times faculty will talk about it being relatively nebulous. They're not really sure if they're hitting the target or not. It's kind of nerve racking in that way. It definitely wasn't that way for me. I knew coming in that you know, to meet the bar, beyond being as good as I could be in teaching, and showing development in that regard, I had to get external funding so I could support research, and then be able to carry out original research with undergraduates here. I was given very clear direction in the early part of my time at Macalester that to really focus on work completely done at Macalester. There's definitely a drive, by faculty members, here and other places, to do collaboration work. So to have a collaborator at a larger university, and do a portion of the work at Macalester, and have a portion of the work done elsewhere, maybe even by other workers, and have this collaborative effort. I was definitely given advice early on to try to pursue projects that are totally Macalester based. So I took on that challenge, and I was able to publish two papers where all the work was done here, and it was all done with Macalester undergraduates. And that was very well received, like when the tenure committee read my file, there was no confusion at all as to the contribution to the work. It was a hundred percent Macalester. So they didn't have to work very hard to ferret out what was done here, what was done elsewhere, where the intellectual ownership was of the work. They really wanted to make sure that it was mostly Macalester ownership of the work. I think the biggest stress in the process was getting publishable work accomplished within the timeframe that you have. Like the time is always the most precious thing that you have, because for me, during the academic year my focus is almost one hundred percent on teaching and trying to help my students. So most of my research work takes place in the summer. So I looked at it

that I have these, kind of putting together all my summer periods into one block, and that's how much time I have, and I have to be able to get some results out of this so that I can actually publish. Trying to make it work in that kind of a time frame was definitely challenging. And definitely I grew a lot, when I tried to make that come to fruition. I think that anything, whether it's a course or getting tenure, whenever you have an external body—whether it be a professor or an institution—that is making demands on you intellectually, it definitely encourages you to grow. I think that in terms of human nature, I think all of us need something there externally to kind of get the maximum out of us. And definitely at Macalester that's very much there, trying to promote faculty growth to the fullest. So that was kind of the biggest challenge, and definitely for me—I knew once I got my second paper published, I felt pretty confident going into the tenure process. So for me, getting that second paper accepted and published, that was maybe more exciting than actually getting the tenure letter, because I knew at that point I was pretty much safe, to get tenure. It was kind of, you know...within chemical research you always have these lull periods where you're trying to get results and a lot of the things don't work, and you have these days that are very exciting when you have results that you maybe didn't even expect. So it's a roller coaster ride. I think that, that's a good description of the tenure process at Macalester. You have ups and you have downs. The challenge is to not get too down emotionally when things aren't really going your way. Then kind of keep the effort going and get up to the high stages again, and keep the momentum going.

[27:14]

LZ: This might be a good time to talk a little bit more in detail about the research you've done and also how that's involved students.

PF: OK. Research that I do, it's in the area of organometallic chemistry, which, organometallic chemistry just means molecules that contain bonds between metals and carbon. And so that's a huge field within chemistry. So, in my area, we're trying to make new molecules with metal-carbon bonds. The most common group that we'll work with in my lab is carbon monoxide. So carbon monoxide can pretty readily bind to a metal, form a metal-carbon bond, and so we're trying to make new molecules with these types of bonds and that. All of the molecules that we're making are reactive towards air and moisture, so you can't make them in an open beaker because they'll just react with the air—components of the air. So we have to use special equipment and techniques to avoid air contact with all of our materials that we're using. It's kind of a whole art, like in my kind of my research, of being able to do these things successfully. Everything that you would learn, like when you're in a general chemistry lab, you can't really do it that way in my lab. You can't stir anything in an open beaker. You can't pour one liquid from one beaker to another. Everything has to be done in a different way to avoid air contact. So that's the greatest challenge for my students, is to get those skills mastered, before they can really make new molecules. Usually for me I try to have students over a two summer period, since the first summer is predominantly technique training. They'll get some results, you know, they'll do some chemistry, but a lot of it is just getting used to the techniques. Then usually in the second summer they can make more progress chemically. Because then they'll have their feet wet and they'll know what they're doing. Since I've been at Macalester, we've made some organometallics with metal bonds to tin. That was a big part of my first paper that I published at Macalester. Then in the second paper, we made, unexpectedly, some new molecules that have what's called hydrogen bonding. Hydrogen bonding is very common in water. Most people

think about hydrogen bonding exclusively with water. But it's a more broad phenomenon. Hydrogen bonding is quite rare involving metals. We made three molecules three summers ago that had—we were able to prove that they had hydrogen bonds where the metal center was playing a very critical role within that hydrogen bond. That was very novel. That's probably my biggest claim to fame, if you will, for my Macalester scholarship, is our discovering those new hydrogen bonds. And that was kind of the critical core piece of the second paper that I published. In that paper there were also some new molecules with metal to gold bonds, were also in that work as well. It was kind of a complimentary study to the hydrogen bonding. Actually just on Saturday I submitted my third, hopefully my third, Macalester publication. It was work done by one student during last summer, so a summer's worth of research. And that had some new molecules with metal to iodine bonds in them. So, I'll know in about eight weeks. It takes about eight weeks for it to be reviewed before I find out if it will be accepted—that's kind of in the hopper right now.

[30:51]

LZ: What is it like working so closely with students in this research?

PF: Oh, it's really great. It's definitely challenging, because you don't get to work with any given student very long. When I was in graduate school I worked for four years on a project, or a series of projects, where I was working essentially over forty hours a week. I was kind of devoting all of my time to this thing. Where here the time frame is so different, and therefore you have less time with each student to actually work on projects. So, the challenging part is always having to teach your techniques anew to new people. And that's part of our mission, but

you know it's more fun when you can get students past that stage, and then start tackling the chemistry that you want to try to tackle. It's really fun to see students grow in my lab, in terms of their confidence in doing chemistry. Because when you walk in my lab it's very intimidating. You know, I admit that, because the equipment is all foreign. Students have never seen what's in my lab. It's very different kind of equipment. And they've never seen it in any of their classes. It's like totally new to them. So, I can watch this transformation of being a little bit intimidated to actually becoming comfortable, mastering these techniques. I think that that process really builds confidence in a lot of my students. That I think extends not only in my lab but also outside of my lab, like into their other chemistry coursework. That they can do things that are really hard. Maybe if they didn't think they could do it at first, they can really do it once they learn the basics—they can actually succeed in it. Also, in my lab, since the compounds are air-sensitive, every one that a student will make is really an accomplishment. Because it's really hard, it's hard chemistry. So I think that definitely in my lab it's really a great place for students to kind of prove to themselves that they can be a chemist—that they can actually make new molecules and they can do new techniques that they had never dreamed of doing before.

[32:59]

LZ: Have you had the opportunity to work with students on honors projects, more in depth with them?

PF: I guess certainly what I do over the summer you could classify as being an honors project. I haven't had any of my students write the honors theses, so I haven't actually participated formally within the Macalester honors program. I guess I mainly stayed away from that pre-tenure more

strategically, that I knew I needed to work on my own writing to try to get things out. I didn't want to spend too much time editing other things that wouldn't directly tie in to my tenure case. So, I didn't really encourage students that strongly to go formally into the honors program. Although a lot of students, really everybody that gets honors in chemistry, will do the same kind of experience that my students do—work in the lab over the summer, and then formally document their work into a thesis and then give a presentation. So my students essentially do all those pieces except the final one. Certainly now that I have tenure I'm more open to doing formal honors projects, so that may be more in my future at Macalester than it has been so far.

[34:14]

LZ: Given that you're a younger professor in terms, just comparison to others, do you feel that you're more able to connect with students?

PF: I think so. I mean I really have no basis for comparison. I've always had good rapport with students. And I kind of think, I don't know, based on what I've seen over the years, I don't even know if age really matters that much. It might matter to some students, in terms of comfort zone. But I think that the faculty, just by how they present themselves, can kind of provide a safe atmosphere for students to come and talk with them, kind of independent of their age. So I'm hoping over my career I'll be able to maintain my strong rapport with students as I go through, even as I get older. It's kind of fun, I don't know, like when you're a college faculty member, you're always in school. I kind of feel like for me I still haven't really been in the real world. I've been in school my whole life. It's kind of fun for me because I don't really feel like I'm getting older. I'm always interacting with the same age group. You know the students will be

here and then move on, and a new group comes in. And so it's kind of a fun career because you don't really feel like you're getting older. When I was an undergraduate, I interacted with undergraduates all the time. And I still do that now. So it's kind of a fun thing. So I'm hoping that it won't really change as I get older. But I think certainly it plays a role. But I think a lot of it depends on your personality, and how...you know we talk about the word approachable—like some professors being more approachable than other professors. I think that approachability mostly depends on how you project yourself as a person, and not just necessarily your age. Certainly when I was at St. Olaf there were faculty members that were quite towards the end of their careers, that still had long lines of students outside their office. Like it really, I think it really varies—it depends on a lot of different things.

[36:21]

LZ: In the six years that you've been here, what issues have you seen students be particularly engaged in, and also have there been issues that the faculty has really taken up?

PF: Well, I think in terms of the most emotion I've seen from students, certainly at Macalester students are really into activism. More so than at St. Olaf College. And I would say more so as well than the University of Minnesota, at least in terms of students working together collectively towards of activism. I think at the U there was activism, but it was more individuals. Where I think here it's more people getting together in groups. I guess that's just part of being a smaller school, it's easier to get to know people. I think in terms of causes, I think I probably saw the most emotion from students towards the change from Need Blind Admissions to Need Aware. I was really surprised with kind of how much the students got into that. Certainly most students

were against the change, they didn't want to see the transfer to need aware. So I kind of enjoyed watching that as a tenure track faculty member, seeing how the administration responded to those comments—that they really did listen to it. And that it really factored in the final outcome. Even though the need aware was voted in, and is now a part of Macalester policy, the student voices were definitely heard. And that was definitely registered as an opinion that was considered. So that was kind of fun to see that happen in front of me while I was here. I think also, certainly issues of war and peace are really big on this campus. I mentioned my first week was 9/11. So my whole Macalester experience has involved the US present in Afghanistan and Iraq. And seeing students interacting to those situations has definitely been a common theme since I've been at Macalester. Those are probably the two—in terms of a more global issue and a more local issue, those are the two main areas of activism that I've seen. In terms of faculty, you asked about that as well, I would say, I don't really see a lot of... Like within the science division, I don't see a lot of outward activism towards global issues. I'm sure faculty have, they do their thing outside of work. But I don't really see it as much on campus. Within the science division, when faculty are on campus it's very much focused on their work and their teaching and their research work. So where I see more faculty activism would be more on college issues. That's where I see more of that. Certainly with the need aware there were definitely faculty voices that were raised as well. Students were maybe more active in that than faculty. I get a sense that a greater percentage of faculty were for the change. Where I think it was different amongst the student body. Definitely amongst the student body there's a very strong theme in terms of trying to quell economic disparities, not just locally but also globally. Certainly the issue of Coca-Cola. That issue kind of boiled down to trying to have a fair gain situation for economics across a broader scheme. In terms of faculty activism, I'm trying to think of one good

thing there, where faculty really got engaged on something. Yeah, I guess beyond the need aware one, that's the one that probably had the most active faculty intrigue. I guess also since I've been here, there's been talk about, talk and also action, of removing some departments. And that's always very much of a hot button issue when you're doing that. So that was definitely an issue—those issues always have a lot of conversation amongst faculty.

[40:32]

LZ: What changes have you seen within the Chemistry Department and where do you see the future of the department going in the next few years?

PF: I think there's been a transition in the Chemistry Department within the last eight years or so, to get a lot younger. In the '60s there was a period of time when a number of faculty were hired and they stayed at Macalester their whole careers. Truman Schwartz, Wayne Wolsey, Emil Slowinski, were here many many years. Fred Stocker was here many many years. He retired a little bit farther back. But since these people all started at the same time, they also all retired at the same time. So the Chemistry Department hired a lot of new faculty in a relatively short period. This cycle should be pretty much over now, with this latest bio-chemistry hire that'll start this Fall. So it's been fun to watch this transition of new blood coming in the department, and these new perspectives coming in. And I think it's had an impact not only on the curriculum, but also on the research side. The faculty that have been hired of late are, I would say, more engaged with scholarship involving research that's not chemical education research. I think the theme of the department in years past was working on a lot of ideas for the purpose of chemical education. Like there were laboratory textbooks that were written in the department, and also

course textbooks that were written in the department. And Truman Schwartz just won an award nationally for his contribution to chemical education. So that was really a theme in our department. And definitely one that we should honor. It's a great contribution. But I think there's been a transition now to more research—more traditional type research—you know, chemical research. And that transition has really I would say come to full fruition since I've been here as a new faculty, kind of taken root in the department and established new programs for doing their research with undergraduates during the summer. And there's definitely, I would say in terms of where we're going, I think that faculty here would like to be able to do more research with students during the school year. I think for some faculty it's easier than for others, depending on your projects. Like for me, like I mentioned, it's pretty hard for me to do research during the school year. I think there's a push in the department to try to make it more realistic to keep the momentum going in your own projects even when classes are in session. And that's a real challenge that a lot of schools like us are facing. As the emphasis is placed more and more on research opportunities with students, the issue of how do you fit this in, in a time—how do you fit it in to the time of your job. That's always been I think kind of a key issue because it's almost as if the research expectation has been added on. But nothing's really been subtracted, from the job description. I think that's still being sorted at, not just at Macalester, but at other places as well. So I think some faculty in chemistry, I'm not totally sure where I stand on this, but some faculty would like, down the line, to have slightly less teaching during the school year to accommodate more continuation of the research in more of an all year round pursuit. So that may happen down the line. Of course, if you're going to have faculty do less teaching, the courses still have to be taught. So that either means hiring more faculty, which is a very pricey thing, or it means having more visiting faculty, which I think can have negative impact on

students. For students, when you come to a small liberal arts college you expect to have a kind of long term rapport with your faculty. You don't expect to have someone there just for a year and then go on. I think having stability within your department is a good thing. I think that would be a direction that might not be good in the long run. But I think that this still has to be kind of sorted out, how we want to proceed in that direction.

[44:39]

LZ: Do you imagine that you will be one of these professors that is at Macalester for twenty or thirty years?

PF: Right now I would say so. It's certainly a great place to be. I'm really appreciative of the opportunity that I was given here. Actually, in some ways I was kind of a non-traditional job candidate because it's very common now in science to do a research post-doc. So you get your Ph.D. in chemistry, and then you'll go into someone else's lab at a different university and do independent research there—to kind of broaden your horizon to learn new skills and become more independent in your research before coming to place like Macalester, where they expect a lot out of faculty in terms of research. Now I did a post-doc, if you will, but it was a teaching one. I went to St. Olaf and I primarily taught there. I did some research, but not very much. It was mostly a teaching position. And so I really appreciated that Macalester gave me the opportunity, because I'm sure that in my candidate pool, the job candidate pool for my search, I'm sure there were a lot of candidates that had research post-doc experience. And I'm glad that Macalester, you know, gave me a chance and so I'll always appreciate that. Certainly, this is a great place to live in. I like the Twin Cities area. I'm a big fan of the Minnesota Twins. I can

just drive to the Metrodome really easily. They have a new outdoor park on the horizon and that'll be fun for me. I also really enjoy music and theater, so I'm in some community bands during the summer which are locally based. I like going to the Guthrie, I'm a subscriber at the Guthrie. A lot of these things that are kind of part of my quality of life, is really great to be in the Twin Cities, to have those things. I live in the neighborhood, I live four blocks from campus. I like my neighborhood that I'm in. So I certainly expect to be here for a long time. No plans to move.

[46:30]

LZ: Do you have a stand out memory or experience so far?

PF: Well, I guess getting my first research grant. I had two research grants here before I got tenure. Actually I'll find out just Wednesday about my third application. Hopefully I'll get that one. Getting the first one was really great for me because it really helped build my confidence. Because I knew that was the first piece of the tenure puzzle—was to secure external funding so I could do work independently on campus. I was pretty stressed out about that one. I wrote the proposal and hoped it would be good enough for the committee. And just getting that was really good for me in a lot of ways. Not only financially, that I actually had some money to work with just that yeah, I can do this. I can propose ideas and I can get funding for them. That was really exciting for me overall. And certainly my first publication from Macalester was really a great experience for me to get that. Because I had never totally shepherded through a paper from start to finish. In graduate school my advisor played a big role in all my publications—did a lot of the writing. Really played a huge role in all of them. Where here I did everything.

Developed the ideas originally, then supervised the work being carried out, then documenting the work, kind of having to do all the pieces. So it was very rewarding to get the work published. I don't think that will ever go away. I think every time I ever publish chemical work that I actually originated it will always be really rewarding to actually bring it to fruition. Because it takes...there are so many steps you have to go through to get work to be in publishable quality. So those are things that I'll always remember. In terms of a teaching memory, I have a lot of good teaching memories. One thing that people know about me now quite a bit in the Science Division is the day after I received a letter from the Provost that I was awarded tenure, or that the faculty committee was going to recommend me for tenure—which is just kind of rubber stamped by the Board of Trustees, I wanted to do a special lecture for advanced inorganic to kind of mark the occasion of getting tenure. And these students were really special to me because, you know, a lot of them I had had in general chemistry. And so they were here all the years that I was here. And so they've watched me go down the tenure path and a lot of them had written letters of support for me for my tenure case. So they were really part of that journey for me. So I did this lecture where I did a demonstration and experiment in class for every letter of the word tenure. That was kind of the theme, and between each demonstration, I gave a little anecdote about something along my trajectory, along my life that influenced me in terms of chemistry. It was really a personal introspective if you will on my career. It was the last day of class so I felt I could kind of do that. We did course evaluations and there wasn't a lot of new content for the last day. Anyway, one of the demonstrations that I did involved very loud sound, it was an explosion essentially. The reaction of hydrogen plus oxygen. And it actually caused the fire alarms to go off, so the entire Olin-Rice had to evacuate. I'll never forget that, that that actually did that. Celebrating tenure in that fashion, causing the entire building to evacuate. That was not

the intention, for the record, but it did happen. I have one faculty member now in psychology that calls me “Boomer” as a nickname. He still calls me that, after that happened. That's kind of my main, kind of my most vivid teaching memory from that presentation back in December.

[50:17]

LZ: What are you really looking forward to or anticipating in the coming years?

PF: Well, I'm really, now that I have tenure I get to go on sabbatical. And I'm really looking forward to it. I'm trying to secure external money so I can go to Berkeley, U of California Berkeley for a year, in an academic research laboratory. I really, I'm really looking forward to that, because since I never had a research post-doc. I never had kind of this formal opportunity at a large university to diversify my skill set. And I'm really—I really want that sabbatical to fill that niche for me. I'm really looking forward to learning new chemistry and learning new techniques. I'm really excited about that and hopefully it'll work out. I'll definitely be able to go there for a semester, but I'm hoping to be able to go for a whole academic year. And everyone here is on board. The Provost is on board with the decision, and so is the Department. It's just a matter of the money coming together. There's a proposal out there right now, so I'm hoping that comes through because that could dramatically impact, well I think it will, dramatically impact my research program here. Because a lot of the ideas that I have now really are somewhat connected to my graduate work. Not extremely—it's not like it's derivative work from my graduate work—but you can definitely see how my graduate work influenced my current work. I'm looking forward to having other projects that have different themes than the ones I've been working with so far with students. Right now, even though I have some ideas, since I haven't

done any of it myself, it's hard for me to teach students how to do these things. But I think after this sabbatical experience I'll be able to do that more easily, and provide a greater diversity of experiences for my students. So I'm really hoping that that will pan out. That's probably my most exciting thing on the horizon right now, is having that sabbatical. I think all faculty that are tenure track really dream about that—like having this time to be growing professionally and knowing your job is being held for you. There's no other profession that really is like that. You kind of go off and have your own agenda for a period of time, and then come back and be able to do the same work you were in before. It's really a special part of academics. So [unclear] so I'm really looking forward to that.

[End of interview 52:45]