CHEMICAL HERITAGE FOUNDATION

FRED BASOLO

Reflections on the Gordon Research Conferences

Transcript of an Interview
Conducted by

Arnold Thackray and Arthur Daemmrich

at

Northwestern University
Evanston, Illinois

on

27 September 2002

(With Subsequent Corrections and Additions)

ACKNOWLEDGMENT

This oral history is one in a series initiated by the Chemical Heritage foundation in collaboration with the Gordon Research Conferences. The series documents the perspectives of key individuals who organized and managed the Gordon Research Conferencfes and records the Conferences' impact on scientists' research, careers, and lives.

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FRED BASOLO

1920	Born in Coello, Illinois on 11 February

Education

1940	B.Ed., Southern Illinois University
1942	M.S., inorganic chemistry, University of Illinois
1943	Ph.D., inorganic chemistry, University of Illinois

Professional Experience

	Rohm and Haas
1943-1946	Research Chemist
	Northwestern University
1946-1948	Instructor
1948-1953	Assistant Professor
1953-1959	Associate Professor
1959-1980	Professor
1969-1972	Chairman of the Department of Chemistry
1980-1990	Charles E. and Emma H. Morrison Professor
1990-present	Emeritus Morrison Professor

Honors

1954-1955	Guggenheim Fellow, University of Copenhagen
1961-1962	Senior NSF Fellow, University of Rome
1964	Award for Research in Inorganic Chemistry, American Chemical Society [ACS]
1969	NATO Distinguished Professor, Technische Universität München
1971	North Regional Section Citation of Excellence, ACS
1972	John C. Bailar, Jr. Medal, University of Illinois
1974	Alumni Achievement Award, Southern Illinois University
1975	Award for Distinguished Service in Inorganic Chemistry, ACS
1976	Francis Patrick Dwyer Medal, University of New South Wales, Australia
1977	Fellow, American Association for the Advancement of Science
1977	Honorary Member, Phi Lambda Upsilon

1979	Fellow, Japanese Society for the Promotion of Science
1979	Member, National Academy of Sciences
1981	Honorary Member, Italian Chemical Society
1981	James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry, Northeastern Section, ACS
1983	President, ACS
1983	Oesper Memorial Award, ACS, Cincinnati Section
1983	Corresponding Member, Chemical Society of Peru
1983	Fellow, American Academy of Arts and Sciences
1985	Honorary Professor, Lanzhou University, China
1984	D.Sc. *(honorary)*, University of Southern Illinois
1987	Foreign Member, National Academy of Science, Italy
1988	Laurea Honoris Causa, University of Turin
1988	IX Century Medal, Bologna University
1988	Award for Research in Inorganic Chemistry, Italian Chemical Society
1988	Honorary Professor, Zhongshan University, China
1990	Harry and Carol Mosher Award, ACS, Santa Clara Valley
1991	Padova University Medal
1991	Distincion Bicentenaria, University of Los Andes in Merida
1991	Chinese Chemical Society Medal
1992	Chemical Pioneer Award, American Institute of Chemists
1992	Sigma Xi Monie A. Ferst Award
1992	Humboldt Senior U.S. Scientist Award
1993	Gold Medal Award, American Institute of Chemists
1996	First Lecturer and Medalist of the Royal Society of Chemistry Joseph Chatt Award
1996	Josiah Williard Gibbs Medal
1996	Member, Chemistry Department Hall of Fame, University of Southern Illinois
1997	Laurea Honoris Causa, University of Palermo, Sacconi Memorial Lecture
2000	Obelisk Leadership Award, University of Southern Illinois
2001	Joseph Priestly Medal

ABSTRACT

Fred Basolo begins the interview discussing his arrival at Northwestern University as an inorganic chemist in 1946. At that time, organic chemistry dominated the field of chemistry, and inorganic chemistry was seen as insignificant. Over the next few years, inorganic chemistry developed into a substantial component of chemistry. Basolo played a major role in that expansion—what he refers to as "the birth of inorganic chemistry." The formation of the Inorganic Chemistry Gordon Research Conference, which Basolo helped organize, was a key factor in inorganic chemistry's rising significance. Although there was no funding for the first conference and attendees had to pay their own travel and registration expenses, enough chemists participated to make the Inorganic GRC successful, and it developed into an annual event. Basolo describes the Inorganic GRC, as well as his heavy involvement in it, for which the conference presented him an award for his fifty years of service. Basolo also talks about his graduate studies under John C. Bailar, Jr., a coordination chemist for whom Basolo had a great deal of respect, and who instigated the first Inorganic Chemistry GRC. Following in Bailar's footsteps, Basolo specialized in coordination chemistry, and discovered the coboglobin site. Basolo also discusses his role in GRC governance, first being nominated to council, then to the board of trustees, and eventually becoming the board chairman. Basolo had concerns that the rapid growth of the organization and the Inorganic Conference could cause applicants to be turned away. Basolo ends his interview with his thoughts about the future of chemistry and GRC.

INTERVIEWERS

Arnold Thackray is President of the Chemical Heritage Foundation. He majored in the physical sciences before turning to the history of science, receiving a Ph.D. from Cambridge University in 1966. He has held appointments at Oxford, Cambridge, Harvard, the Institute for Advanced Study, the Center for Advanced Study in the Behavioral Sciences, and the Hebrew University of Jerusalem. In 1983 he received the Dexter Award from the American Chemical Society for outstanding contributions to the history of chemistry. He served on the faculty of the University of Pennsylvania for more than a quarter of a century. There, he was the founding chairman of the Department of History and Sociology of Science, where he is the Joseph Priestley Professor Emeritus.

Arthur Daemmrich is a policy analyst at the Chemical Heritage Foundation in Philadelphia. He holds a Ph.D. in Science and Technology Studies from Cornell University and has published on biotechnology policy and politics, the sociology of medicine, and pharmaceutical drug regulation. In his research, he brings long-range perspectives to bear on the analysis of globalization, risk, health, and environmental policy. Daemmrich has held fellowships from the Social Science Research Council/Berlin Program for Advanced German and European Studies, and the Kennedy School of Government at Harvard University.

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LOCATION: Northwestern University
Evanston, Illinois

DATE: 27 September 2002

THACKRAY: Fred, we should begin with you coming to Northwestern [University]. Were you aware, as a graduate student, that there was such a thing as the Gordon Research Conferences [GRC]?

BASOLO: No. [laughter] I wasn't even aware that Northwestern existed before I went there to teach.

My first job was as a research chemist at Rohm and Haas, where I worked on a classified military project during World War II. As soon as the war was just about over, most of the researchers were free to seek other positions. I had always wanted to teach because, as an undergraduate, I went to a teacher's college where everyone got a bachelor's degree in education. I also wanted to stay in the state of Illinois because that's where I grew up. All universities were looking for faculty at that time because the GIs were coming back to school, and the government paid their fees.

When I arrived at Northwestern in 1946, there really wasn't a viable graduate student program in inorganic chemistry. There were a couple of graduate students working on something that could probably be called inorganic chemistry, but not the kind of inorganic chemistry that I or [Henry] Taube, who won the Nobel Prize, did. No one was working on anything similar to what these graduate students were doing. Furthermore, there were not enough inorganic chemistry students to have an inorganic seminar or special courses in inorganic chemistry.

Since you guys are the experts on the history of chemistry, you can tell me about this. Everyone talks about the renaissance of inorganic chemistry. Well, I was involved with that renaissance! Actually, I'm inclined to call it the "birth" of inorganic chemistry because renaissance means that you're coming back to something that has already been done. I want to point out that the gestation period in the United States was a hell of a long one. No one would believe that inorganic chemistry is where it is now, compared to where it was in the 1940s. It's made such jumps that it ranks now very close to organic chemistry. Earlier, organic chemistry had dominated the chemistry field. That was the situation in terms of my early years in chemistry.

THACKRAY: You came to Northwestern as an inorganic chemist. There wasn't much there, so who did you talk to there, in the immediate post-war period?

BASOLO: When I came, Northwestern had positions for about six or seven faculty. I think there were six of us who arrived at about the same time. We used to get together in an office and have lunch together. Eventually, that developed into a lunch that we now have together in the lunch conference room. We talked about football games, baseball games, and so forth, but we would occasionally talk about chemistry. When chemistry was discussed, it was clear that inorganic chemistry really was not considered to be all that significant.

Ralph [G.] Pearson, whose training was in kinetics and mechanisms of reactions, was working on organic compounds with some of our organic chemists and helping them learn this kind of chemistry. I would always say to him, "How about coming on board? No one else is looking at the systems we would be studying. We could work on what you're doing on organic compounds in the metal complex class of compounds. Almost anything we could do would be original, publishable, and useful as far as students are concerned to get their Ph.D. theses approved because that also would be original work." Pearson did come on board at Northwestern, and together, we did what was not possible individually. He needed me, I needed him, and we arrived there at just the right time.

THACKRAY: How did you get from there to being this first Inorganic Chemistry Gordon Conference organizer?

BASOLO: I have a whole pile of things that I haven't thrown away. I'm about to give the archives some things and throw other things away. I think I put that right at the top. Let me see what that is. Does that look like it? [gesturing to a piece of paper]

THACKRAY: GRC.

BASOLO: Yes, that's the Gordon Research Conference. [laughter] We're looking for two sheets which are obviously things that were xeroxed. I thought I put them right out on top of everything. Well, I'm sure you're going to get these, but I really wanted to show you them first. I can tell you what's on it, but I should have it sitting here.

THACKRAY: It's not this, is it?

BASOLO: Good for you! There's another page, though. [looking for the 1951 program of the Inorganic Chemistry GRC]

GRC started in 1931, long before the inorganic chemistry GRC took place. Discussing inorganic chemistry wasn't all that important in the 1930s. Also, in order to start a Gordon Conference, I think they had a rule that an excess of fifty people needed to attend in order for the conference to pay for itself. It would not have been possible to get fifty inorganic chemists to go to the GRC because there was no funding. They would have had to pay the travel and registration expenses themselves.

The way I remember it, the first Inorganic Chemistry GRC took place in 1951. It started with a discussion—not even a lecture, but just a discussion of some areas in inorganic chemistry. These discussions turned into lectures, and the first legitimate lecture given was mine. There were discussions before my lecture, but they had nothing to do with what I spoke about. After my lecture, there were then additional lectures.

The Inorganic Chemistry Conference continued to be held every year. Each year, inorganic chemistry began to grow more important, so that the number of people that wanted to attend went up from about fifty to one hundred fairly quickly. It stayed at that number and even got a bit larger. Finally, we agreed that we should have no more than one hundred fifty people attend, but not too many less than one hundred fifty because of the schools they were in. We needed that amount of money to carry on these Gordon Conferences, and they did go on from 1951 until now. Only one year was missed.

I don't know that I should tell you this, but the chairman—we didn't know this at the time, of course—was having trouble working up a program and getting speakers. Alex [Alexander M. Cruickshank] would call the chairman and ask for a certain program at the conference, and the chairman would say, "I've still got one or two more people to contact." Alex would say, "Look, we always publish these in *Science*, and I really need this information or we won't be able to publish it." The end result was that the chairman had become an alcoholic, and it was too late before the board found out. That's why the Inorganic Chemistry Conference missed a year.

THACKRAY: So, there's actually a gap?

BASOLO: Yes, one year. I can't remember which year it was.

THACKRAY: Can we go back to the first conference, Fred, and the idea of having a Gordon Conference on inorganic chemistry? Was that John [C.] Bailar, Jr.'s idea?

BASOLO: Yes, John Bailer was largely responsible for starting the Inorganic GRC. He was assisted by his colleague, Therald Moeller, from the University of Illinois and [Willis] Conrad Fernelius at Pennsylvania State University. People like Bob [Robert W.] Parry and myself were also involved at that time. Early on, [Arthur E.] Martell and Anton [B.] Burg did good work for the Inorganic Chemistry GRC. These people were a bit older than Parry and I, and they were much more involved. We were, of course, being helpful with sending mail to inorganic chemists, asking them to attend our GRC. Parry and I have been very loyal attendees at the conference since its birth. In fact, they presented me with a "fifty years of service" award. It indicates that I've been going to the conferences for fifty years. Parry and I haven't missed very many of the Inorganic Gordon Conferences. He was also presented with the same award the following year.

I certainly missed a couple though, because I was dying with pneumonia for four months and was not able to be there. One other time, I had a commitment abroad, so I guess I only missed two or three conferences total. Even now, I can't do any other traveling, but I still enjoy going to the Gordon Conferences. I have to make arrangements with Carl [Carlyle B.] Storm, the director at the moment, to make sure that I have my oxygen generator and a scooter, both of which I need. Also, they know that I no longer have funding because I haven't been doing any research; I haven't had a lab for the last fifteen years or so. Carl, somehow, picks up the tab for my stay there, registration, and everything. He calls me a consultant, I guess. [laughter] So, I'm a consultant for the GRC. Carl's been very kind about it.

I was editing a small journal, *Comments on Inorganic Chemistry* [CIC]. The journal was not that prestigious, but it was an adequate and respectable journal. It was very helpful to young people who were filling up their resumes by listing their publications in the journal as part of what they'd accomplished to get tenure. I'd tell them, for example, "Look, write your article for *Comments on Inorganic Chemistry*. You have to write it up as a research proposal for findings. Then, edit it and send the properly edited paper to *Comments on Inorganic Chemistry*." They were all very thankful because it would be an invited publication that could be of help in their tenure resume. Actually, not all, I guess, but most of them were very thankful. [laughter] The journal did very well.

I finally got tired of being editor of CIC a year ago and recommended to the publishers that they contact John [P.] Fackler, [Jr.]. He is good at that kind of work and was very pleased to take the position. Needless to say, I'm no longer doing it. I have more than enough to do—I have trouble keeping up with what I'm doing now as it is. Very quickly, I wanted to show you this book for Nobel Prize laureates. Editors take reprints of articles that the people have published, fix them up, and make them into a book. Several volumes have already accumulated; most of them are about Nobel Prize laureate contributors.

DAEMMRICH: Now, if we jump back again to this 1951 conference, Fernelius is listed as head of it. Who was he? Tell us a little about him.

BASOLO: He did research but never attracted all that much attention. That's okay because he was still contributing. Also, he was, along with Bailar and those people, certainly interested in starting the Gordon Conference. So yes, he should be mentioned in the history.

DAEMMRICH: Where was he?

BASOLO: Penn State [Pennsylvania State University].

DAEMMRICH: Was it thought right away that this would become an annual conference, or was it more like, "Let's hold one and see what happens?"

BASOLO: No, as I said, inorganic chemistry was just starting, so there weren't all that many people in the field. Also, the people didn't have much funding, so they couldn't get money for travel and registration. It started slowly, but I think we all thought that the Inorganic Chemistry Conference would continue because the other Gordon Conferences were continuing. The format of ours was the same as the others Chemists had talks in the mornings and evenings, and took the afternoons off. The attendees were free to do whatever they wished in the afternoons. Most of them arranged to have some sport activity. A few would even discuss their research with collaborators and even prepare a joint co-author manuscript for publication. It's a very nice, unique format for such a conference.

The other thing that's very nice about the conference is that the number of people attending is limited to one hundred fifty. You two probably have been to an American Chemical Society [ACS] annual meeting—there are thousands of people running around. You couldn't find anyone even if you want to! Our living arrangements for the conference were at a school. Now that I'm handicapped of course, I don't do that. We would share rooms and eat in the cafeteria all together. It was very easy to find someone and make arrangements to see them some afternoon if you wanted to talk to them about your research or about writing a paper together.

The GRC is unique in that respect. Those of us who have been to both conferences—GRC with less than two hundred people, and conferences with thousands of people—like the GRC arrangement best. Every year, some of the very best inorganic chemists, who've done really outstanding work, are invited to the conference. For several years, they also had poster presentations, so graduate students and others have attended and put up their posters. The Inorganic Chemistry GRC has been going on all these years, and is still going strong. In fact, it's gotten so large that a couple of years ago, the fellow who was chairing it got one hundred eighty requests. He had a hell of a time getting it down to one hundred fifty. So, there's no problem with the Inorganic Chemistry Conference. I don't know about the others.

THACKRAY: Had you ever been to anything like the first Inorganic Conference? Did it remind you of anything?

BASOLO: It didn't vaguely remind me of anything. I got involved because of Bailar and the fact that there were so few inorganic chemists. Those of us who were younger got involved by writing letters to the few inorganic chemists we knew were working on inorganic chemistry projects. We pointed out how much we needed them to support the conference, and how important it was going to be. We didn't know it was going to end up the way it has. We didn't know that inorganic chemistry was going to be what it is today. Seriously, we do have some of the very, very top people, and the research they're doing is on inorganic systems. Most of them are working on physical inorganic chemistry. There were zero researchers working on such projects when I arrived, and now, it is just frightening to realize what's been going on in inorganic chemistry research and development.

Fortunately, the president and provost of our university are strongly supportive of the chemistry department. They know that the chemistry department practically pays for itself because guys go out and get these grants. I don't know what percentage the university takes out of those, but it's at least 15 percent or so of what the researchers get. Also, every once in a while, scientists are able to get some government agency to put a lot of money into their buildings, like the nanotechnology findings building you went through this morning.

DAEMMRICH: One of the interesting things about this 1951 conference is that, from the start, you had industry representation. What was the interest of industry in inorganic chemistry at that time?

BASOLO: Yes, that's a good question. There wasn't all that much interest in inorganic chemistry in industry, because the large-scale production of inorganics like H_2SO_4, NH_3, and HNO_3 was established. The emphasis was on the organics—plastics, polymers, pharmaceuticals, and petroleum products. The so-called "rare-earths" or lanthanides were being used in different ways though. There was a commercial laboratory, Harshaw Chemical Company, which was actually preparing compounds of some of these metals.

THACKRAY: The first day of the first conference, Fred, was devoted to crystal growth, and there was a Bell Lab[oratories] speaker. Was that already about germanium silicon?

BASOLO: Yes, it was. I don't remember too much about the commercial stuff. It wasn't mine, but it was certainly true. They had a special need for those crystals, so there were three to five people at the conference who were in industry and grew them. The rest of us were in universities.

[END OF TAPE, SIDE 1]

THACKRAY: Did you know anything about crystal growth?

BASOLO: Not really [laughter], but that's one nice thing about the Gordon Conferences. After we got going, we tried to have maybe two or three different topics at each conference, so that the people attending would have done research on one of the topics, but didn't know beans about the other two. It was felt (and still is, for that matter) that everyone should be aware of what's going on in all of the three topics, and one easy way of learning about them it is to go to a Gordon Conference. One of the rules is that if you go to the Gordon Conference, you're expected to stay there the full week. That exposes everyone to the areas of chemistry they know little or nothing about. It has worked out very well. The GRC also brings in outstanding people that attendees can look up to. Everyone feels it's worthwhile to stay for the opportunity to meet and have lunch with some of these exceptional chemists.

THACKRAY: That territory of crystal growth was inorganic chemistry. Did solid state and semiconductor stuff come out of inorganic also?

BASOLO: That's an area I know little or nothing about, but I think that's correct. Certainly silicon chips in our high-tech equipment are inorganic.

THACKRAY: Another day of the inorganic conference was spent on electron-deficient compounds. I'm not sure what that would mean exactly. Do you know what that was?

BASOLO: No, I'm not sure what it was either, but there are compounds which are electron-deficient. They're supposed to have eighteen electrons and they only have seventeen or something like that. The ones that are electron-deficient are generally much more reactive and less stable than the compounds that are not electron-deficient. I'm pretty sure that's the general definition.

THACKRAY: Can you give me an example or two? I'm just totally ignorant about what they might be.

BASOLO: One excellent example comes from our work which showed that the 17e $V(CO)_6$ reacts 10^6 time faster than does the corresponding 18e $Cr(CO)_6$. In terms of the chemical bonding of many organometallic compounds, it is known that the stability number for such systems is an 18-electron count.

THACKRAY: Another day was spent on inorganic fluorine compounds. What's interesting about inorganic fluorine compounds?

BASOLO: Well, fluorine is a very corrosive, very reactive element. Even now, people have to be careful when they work with it. In the Manhattan Project, for example, a lot of laboratories were centrifuging the gases of uranium fluoride. This was done to obtain the 235-uranium isotope needed to make the atomic bomb. They did that by making a gas with fluorine. Fluorine is so reactive that some things that can be done with it cannot be done with chlorine. That is the best-known use of inorganic fluorine, I guess. Of course, now there is fluoridated water, toothpaste, and non-stick, Teflon-coated pans.

THACKRAY: So the lecture that day might have trenched onto homogeneity, radioactivity, and those sorts of territories?

BASOLO: I doubt it because early on, people weren't talking about things like that. The Manhattan Project was still classified. This fellow George [H.] Cady was at the University of Washington, and he was one of the few people doing chemistry with fluorine. Then, when all the people working on the Manhattan Project left after it was over, many of them went into academic positions. In the academic positions, they continued to research fluorine chemistry, so all of a sudden, fluorine chemistry became quite important work.

THACKRAY: The other day of the GRC focused on coordination compounds. What was attractive about that?

BASOLO: Well, what's attractive is the fact that I do it! [laughter] Seriously, since you guys are studying history, I should tell you about it. Way back when, in the early 1800s, there was a man who developed a lot of compounds. It was very interesting—he found different colors and so forth. His name was S. M. [Sophus Mads] Jørgensen. S.M. Jørgensen, from Copenhagen, made these compounds with his own two hands, analyzing everything. I spent a year—my family and I—on sabbatical, working the same labs as Jørgensen had. He had a whole cupboard full of these compounds. Jørgensen had a theory, which was referred to as the 'chain theory,' and he used that theory as a guide in making the compounds. He was very successful.

It took about one hundred years or so before Alfred Werner came along. Alfred Werner was trained as an organic chemist but was intrigued by all these colors that the coordination compounds had. He was also interested by the fact that people didn't understand too much about them. Alfred began to study the compounds and finally ended up with his own coordination chemistry theory one hundred years after Jørgensen. The first compound made, I

guess, was by [B.M.] Tassaert; he published a paper on it in 1789 (1). I don't know if he ever published any other papers. Werner's paper was published in the early 1900s (2), and in 1913, he got the Nobel Prize.

THACKRAY: Why did you get into coordination chemistry?

BASOLO: When I went to Illinois, I found that the professors, while very good, all happened to be organic chemists. The University only had two or three inorganic chemists on staff. I completed my undergraduate work at a teaching college, and there was a member of the faculty who really looked after me. We got along very well. He was an inorganic chemist. When I got to the University of Illinois and had to decide on a certain focus, I chose inorganic chemistry, even though the giants of organic chemistry were all there and practically all other graduate students were in organic chemistry.

I spoke with graduate students and three of the inorganic chemistry faculty there and knew I didn't want to work with any of them. Then I found John C. Bailar, Jr., who not only was a good chemist but a good guy. He had a great interest in his graduate students, and he intrigued me so much that I went to work for him. He was an organic chemist who became a coordination chemist. Coordination chemistry involves mostly all of the metals. The metals attach themselves to so-called ligands in groups two, four, and six. That results in the formation of most of the area of metal chemistry in coordination chemistry.

THACKRAY: So John Bailar, as an organizer of the GRC in 1951, got a day on coordination compounds and put his star graduate student on first?

BASOLO: Well, I don't how that happened; I didn't even know that when I was writing the book (3). Fortunately, I hadn't thrown everything away, so I looked through what I had. It was then that I realized that it looks like that was when the Inorganic Chemistry GRC first started, and it also looks as though I gave the first lecture about the subject.

THACKRAY: Did coordination compounds become a staple subject in the Inorganic Conferences?

BASOLO: Yes, in some ways, the subject became a staple subject of the Gordon Research Conferences. It might not have been called coordination chemistry, but in the chemistry that was being discussed, people could see that there was coordination going on. In fact, a very important field now is bioinorganic chemistry. Since 1950, there has been an International Conference on Coordination Chemistry [ICCC] held every other year in a different country. The 35th was in 2002 in Heidelberg, [Germany], and in 2004, it will be in Jerusalem, [Israel].

There are also journals on coordination chemistry, such as *Coordination Chemistry Reviews* and the *Journal of Coordination Chemistry*.

I haven't gotten to the work that I did. We ended up finding out that cobalt, in place of iron in hemoglobin, is a synthetic oxygen carrier. Nobody had ever noticed that before, and we called it the coboglobin site. It's inside the biological system itself. Instead of having ferris, you have cobalt. That's coordination chemistry.

THACKRAY: Bioinorganic is a separate conference that came out of the Inorganic, right?

BASOLO: Oh, yes. Inorganic Chemistry now has gotten so large that people are suggesting that we should no longer have an Inorganic Gordon Conference because there are so many areas to be covered under that subject. Inorganic chemistry now consists of bioinorganic chemistry, organometallic chemistry, and several other areas. They say that we should simply have whole Gordon Conferences devoted to each specialty. Now, some of the old timers like myself—and I keep mentioning Bob Parry because he's just like me—keep insisting that we shouldn't let these specialized Inorganic Chemistry Gordon Conferences do away with our established Inorganic GRCs. Our argument is that we'd like to use the present, more general conference to expose people to the different areas of inorganic chemistry. At the moment, we're still doing general Inorganic Chemistry Conferences in addition to specialized conferences, and we hope this continues.

DAEMMRICH: In the early 1950s, inorganic chemistry was a field dominated by German chemists.

BASOLO: Oh, yes.

DAEMMRICH: In the early 1950s at the Gordon Conferences, did people come from Germany, or did you just draw people from North America?

BASOLO: Well, we didn't have any money to finance anyone from abroad, so we weren't getting them. Occasionally, we'd get one or two people and that eventually picked up. When I was a graduate student, for example, I didn't know any Germans, but most of the inorganic chemistry was being done in Germany; they were making compounds there. In my research, there were times I wanted to use a compound that had been made in Germany. The information on the compound would be published in German journals, which I wasn't able to read. I would have to do the best I could to make that compound. It became almost possible to make the compounds, even though I didn't know any German. I recognized some of the words, mix this with that, and got the formulas for certain reactions; I experimented.

That's also what the Germans did. It turned out that they were really concerned with making compounds and couldn't care less about what happened as the reactions took place. I got in this area of working on metal carbonyl chemistry because, at the ICCC in 1955 in Amsterdam, I asked Professor Walter Heiber how such reactions took place. His reply was, "Young man, in my laboratory we do real chemistry. We don't study the philosophy of chemistry." I was about thirty-five years old at the time, and trying to do chemistry in that area. It turned out very nice because the field was very new and nothing had been done yet. We were able to publish, and graduate students were able to come up with original work for their theses.

DAEMMRICH: Were any grad students coming to the early Inorganic Conferences?

BASOLO: I think practically none were—even the faculty people weren't going. Again, it had to do with travel and expenses. We would write letters to them and beg them to come if they possibly could. Some would make the sacrifice to come; there may have been an occasional graduate student. Now, graduate students come and pay less of a registration fee. In fact, the Gordon Research Conference has developed into a real business, where they have quite a bit of money. They give this money to graduate students to offset costs. The GRC doesn't cover all the expenses, but it certainly would pay enough to make the conference very attractive to students.

It's attractive to them for another reason also. To get an academic position after completing their research, students go to a Gordon Conference and meet someone from a university that has an opening for new faculty. Then this young person and the others can get to know one another. In conversation, the older person in the department can find out what the younger person is interested in doing, and how capable he would be. I helped two or three of my students over the years exactly that way. I would introduce them to someone from a certain university, and by the time the Gordon Conference was over, they got to know one another very well. These guys did indeed get positions at universities where they had talked with faculty members, so the Gordon Conference is a place of opportunities

DAEMMRICH: Did you hire people for Northwestern using that sort of method?

BASOLO: I don't think so. We'd go to meetings and be impressed with what was being presented and the person who presented. Then, if we (the two or three of us on the faculty that attended the GRC) agreed that this person was doing interesting things and understood what he was researching, we would invite him to come and give a seminar at Northwestern. That way, the entire faculty would have a chance to talk to him and listen to his seminar. If all went well, the person would be made an offer. There were a variety ways to come up with new faculty.

DAEMMRICH: Sticking with the topic of Inorganic Conferences, did you end up chairing any?

BASOLO: Yes, as I recall, I chaired several.

DAEMMRICH: What was the experience like in terms of deciding who would get to come and how to send out invitations?

BASOLO: Well, it would depend on what was happening in inorganic chemistry, which was of primary interest, and who was doing that research. We'd sit down and work out our program. Then, we would send it to a few people and ask for suggestions. They would say: "No, I wouldn't plan this," or "You probably forgot to do that." The chair of the conference should be competent enough to basically come up with a program with little or no help. It's their responsibility to do it. One year, the program wasn't finished, but no one paid any attention because it was the chairman's job to plan it. When everyone finally realized that the information they needed to prepare for the conference hadn't been gathered, it was too late, so we canceled that one GRC.

You guys will appreciate this, I'm sure. I, along with several other people, was looking at applications for starting new conferences, and together, we tried to evaluate them. Depending on the nature of the conference, you either approve it or you don't. The number of conferences before I left had reached almost exactly one hundred, and I made the point that the number shouldn't go much higher—that we should keep the conferences the way they had them.

DAEMMRICH: You mean, in terms of the number of the participants, not the number of conferences?

BASOLO: No, the number of conferences. There were lots of different areas of chemistry, so there were conferences on those different focuses. It was apparent that people were going to these conferences who were not even chemists—they were physicists or something else. Since this is a conference that's supposed to be only a chemistry conference, I tried to point out what was happening. I said that some kind of arrangement should be made to prevent non-chemists from attending, at least to a large extent. In order to do that, I convinced people on the board that we should have a question on the application form. It turned out to be the third question on the application: "How many research chemists in your lab are working in this area?" Some people wrote, "There are no chemists working in this general area," so I suggested that the GRC shouldn't have conferences on those subjects.

Well, everything's gotten to a point where now the Gordon Conferences are no longer only on chemistry. Likewise, they hold GRCs in several different countries. Knowing this, I called up Carl and said, "Would you please read a part of my autobiography because it has to do

with the Gordon Conference, and tell me if there's anything wrong with it?" (3) He said it was great except that we had just established a conference in Singapore. I said, "Singapore? Christ, there are no chemists in Singapore." They had no opportunity to have these kinds of conferences before, so they started a conference in Singapore. The GRC holds conferences all over the world. That was not originally intended, but that's what has happened. Some people seem to always think that "bigger is better," but I do not agree.

DAEMMRICH: Now, the Inorganic Conferences—I gather they were initially very much self-funded out of the dues and what people paid.

BASOLO: Oh, yes.

DAEMMRICH: Then at some point, the Air Force Office of Scientific Research [AFOSR] kicked in. What's the background behind that?

BASOLO: That's right. I don't know exactly how it happened, but in those days, the so-called Atomic Energy [Commission] people were putting some of their money into research. The Air Force Office of Scientific Research also had some monetary support for basic research. Dennis Elliot, Bob Parry, and a few others were staff members of the Air Force. At some point, the Air Force was giving the Inorganic Gordon Research Conference funds to help support it. It came to a point where it was routine to get a certain amount of funding from the Air Force, and that was very helpful. Then later, they stopped supporting us. Fortunately, by that time, the GRC was in pretty good shape and able to support itself.

[END OF TAPE, SIDE 2]

DAEMMRICH: During the 1950s and 1960s, were you going to other conferences or just the Inorganic?

BASOLO: I only went to the Inorganic Conferences.

DAEMMRICH: Did you occasionally meet and talk with the chairs of some of the other conferences?

BASOLO: Yes.

DAEMMRICH: What sort of things would you talk about?

BASOLO: We would talk about the research that we had done as graduate students. Sometimes we had things in common, sometimes we didn't. It always was an interesting exchange. That's the way things were at that time. In a sense, there was more of a community during the 1950s in inorganic chemistry.

DAEMMRICH: Did you have any interactions with [W.] George Parks?

BASOLO: No, I didn't. Alex was the fellow in charge when I started. Bob Parry was on the board with Parks. He did some of the things that needed to be done, and that's when Parks resigned. I came on board a year or two later.

DAEMMRICH: Now, how were your relations with Alex Cruickshank?

BASOLO: Oh, my relations with Alex were absolutely superb. Alex is a really fine person. He's a real Scottsman, you know. He wouldn't spend a dime if he could do it with a nickel! [laughter] He would go to the schools where we hold the conferences, and they would always try to get more money by raising registration fees. I guess he knew how to handle them. He would threaten the schools—if they raised fees, he would have to cancel one or two of the conferences.

He and I knew each other through a professor at Illinois that I met while I was there as a graduate student. I guess he didn't get tenure there and went to the University of Massachusetts. Alex got his master's degree with this person. I knew the professor too, so that helped me and Alex become friends.

Alex wouldn't spend any money from the Gordon Conference. I don't know whether it was because of Parks and what he did, but I think Alex is just that kind of guy. At some point, the new and old board members, Alex, and I all started having lunch together. We would all contribute and pay for our own lunch. One day, someone said, "Alex, you can certainly justify this to the IRS in terms of our getting together to discuss the business of the conference." That's the way it just happened with inorganic chemists who were a part of or had been a part of the board. Every year we went out to lunch, always on a Tuesday. It's still going on.

DAEMMRICH: That's during the week of the conference?

BASOLO: Yes, Tuesdays. Whoever is director picks us up, we go to a pretty good seafood place, and John [P. Fackler, Jr.] and I have one martini too many. [laughter] I like seafood, and I don't get any here in Illinois.

THACKRAY: Who's at that lunch these days?

BASOLO: Well, last year I was there, and I don't think Harry [B.] Gray came to that conference. He had gone to it a couple of years ago when he was involved. Actually, when I was there, he was on the board. Fackler came to lunch also, and invited some Frenchman. I know him fairly well now; he invited me to Bordeaux, [France], where they have all that good wine. I gave a lecture there.

THACKRAY: Was Bob Parry at that lunch?

BASOLO: He usually is, but wasn't this year. He would have come, but had some other commitment.

THACKRAY: It sounds like the senior debenture holders. Would somebody as young as Mark [A.] Ratner be there?

BASOLO: Oh sure, he's on the board. It just works out that way. Anyone who is or has been on the board of trustees and involved with the Inorganic Conference would attend that Tuesday luncheon. It's a good strategy; they gave us a good lunch.

DAEMMRICH: How about Alan [H.] Cowley?

BASOLO: Alan Cowley from the University of Texas? Yes, he was there this year.

DAEMMRICH: What's his connection?

BASOLO: Oh, he just attended the conference, but he had been on the board of trustees. I'm not sure whether he had been chair. I think he'd also been the chairman of the board of trustees at one time. That's the way that luncheon gets together. Sometimes we will only have three or four guys. Other times, there are eight or ten. You never know how large it's going to be. It depends a lot on who attends that particular conference.

THACKRAY: And the director would be there? Carl or Alex would have been there?

BASOLO: Yes. This year Carl was not there, but he appointed someone in his place. He was starting another conference, I think in Japan, so he wasn't at that Inorganic Conference. Otherwise the director, Carl or Alex, would always be there to pick up the tab and so forth.

DAEMMRICH: Do you talk about topics for the next year?

BASOLO: Yes, that's discussed. By the last couple of days of the conference, we know who the chair is going to be for the following year. He passes around a sheet of paper asking us to indicate what we think the topics should be. Obviously, not everybody responds. Some do, so the chair at least has a feeling for what the group thinks should be the focus of the conference the following year. I'm sure the chairs get some good suggestions, in addition to what they themselves have been thinking of.

THACKRAY: Over the years, the Inorganic Conference has been very successful; it's been very long-running. What have been the difficult aspects of making it work over time?

BASOLO: At the beginning, the difficulty was that the people who attended were largely financing themselves. There just wasn't funding in those days, but now we have the necessary funding. We also have a budget for travel. The lack of money was a difficulty in getting started, but as soon as funding became available, that aspect disappeared. I don't know of any really serious problems in the Inorganic Chemistry GRCs. [laughter] To become chairman, people are nominated and elected on Thursday. Every other year, we rotate an academic person and an industrial person, so that people from industry are not ignored. It works out really well because the conferees, like myself and others, really get quite a bit out of conferences arranged by people in industry. Likewise, I'm sure that the people in industry learn a lot from the academic angle of more basic research.

THACKRAY: What about the person who's nominated for chairman but isn't voted in as chairman? Don't you end up with a lot of people with bruised feelings?

BASOLO: Well, I expect that can happen. You usually end up with two people being nominated. No one is nominated until they have been contacted to see whether they would be willing to serve as chair. If they say yes, then they are nominated and the board votes.

THACKRAY: If someone is nominated and they don't make it, do they then tend to be nominated again in a couple of years?

BASOLO: Yes. Usually that's almost a foregone conclusion. Since we alternate between an academically and an industrially-run GRC, there would be at least one year that a particular person couldn't be nominated. If the current chair is in academic work, then the next chair will be from industry. Other than that, I don't think there are any hard feelings. In general, everyone realizes that only one person can win the election Thursday night.

THACKRAY: Harry Gray told us that when he was chair, he threw a wine party for the group. Is there a tradition of chairmen doing something special?

BASOLO: I don't know about Harry, but I think so. On Thursday evening there's always a lobster dinner, and people look forward to it. We couldn't have drinks with our meal in the cafeteria, but we would have our drinks before we ate the lobster dinner. Harry Gray was responsible for this because he was the chairman of the board of trustees. He's quite outgoing, very active, and takes charge of such affairs. On one occasion, he had the group honor me with a large plaque for fifty years of attendance at the Inorganic GRC. The following year, Bob Parry was also honored. This kind of thing had never been done before, and I don't think it started a precedent.

THACKRAY: Are there other special traditions in the Inorganic Conference? You mentioned the lobster lunch.

BASOLO: Well, I can't think of anything specific. When I was not handicapped, I liked to play golf and tennis. I'd bring my golf clubs and tennis racket. Other people would do the same, depending on what their interest was. A lot of people used the free afternoons to play their favorite sports.

In my case, Denny [Dennis] Elliot was a fellow that we talked about who was in the Air Force. He, Bob Parry, and I played tennis in the morning before breakfast. They didn't play golf, so I would play golf in the afternoon. My routine was tennis in the morning and golf in the afternoon. I was much younger then and could do those things. Some people knew that I would be on the golf course in the afternoon because I enjoyed golf. There were golfers that golfed much better than I did—I never played tennis well and never golfed well, but I enjoyed both greatly. These kinds of things became traditional events. We all knew who was going to do what. There were many activities for everyone to get involved in

THACKRAY: What happens if I'm not a very sporty type?

BASOLO: Then you'd have other ways of getting together. You could carry on conversations about chemistry or watch a baseball or football game on television. There are people who enjoy walking around. Others would go drive into town and do some shopping or whatever. I guess, as a result of all the activities available, traditions form

THACKRAY: Do a lot of people have family come and stay in the area?

BASOLO: Not a lot, but there certainly are some.

THACKRAY: You had your family in the area, but you were away for the week, typically?

BASOLO: That's right. My wife came with me a couple of times, but we didn't bring the children. We left our children with their grandmother nearby. Later, Mary [P. Basolo] stopped coming.

THACKRAY: So most people would be on their own?

BASOLO: Yes. I don't think they had family with them, but they could have if they wanted to.

THACKRAY: It's just a group of fanatics together! [laughter]

BASOLO: Well, you could say so. [laughter]

All right, let me ask you one question. You guys are doing the history of chemistry. Do you have a chemist? If so, what kind of a chemist?

THACKRAY: We have a couple of people on the staff with chemistry Ph.D.'s, yes. One's a polymer chemist and the other is an organic chemist. I'm sorry to say that we don't have an inorganic Ph.D. [laughter]

[END OF TAPE, SIDE 3]

BASOLO: Is it recognized worldwide that the Chemical Heritage Foundation [CHF] is collecting all this information?

THACKRAY: Oh yes. For instance, we have the archives of IUPAC [the International Union of Pure and Applied Chemistry], which interestingly and wonderfully were given to us. They were temporarily in Oxford, England, but they said CHF is a better place.

BASOLO: The reason I ask some of these questions is that I have compounds that were made more than one hundred years ago by Sophus Mads Jørgensen.

THACKRAY: You have some of his compounds?

BASOLO: Yes, and I also have some of Alfred Werner's. It's rather interesting, so I'm going to see if I can find them. Here's what happens when you get old!

This is a Basolo Medal, which is awarded each year to an outstanding inorganic chemist. [Basolo holds up a medal]. The award was established by my students, post-doctorates, and some friends. They managed to raise the endowment, which is now in need of help… say, from CHF? I want you to take a copy of the latest Basolo Medal Lecture program.

THACKRAY: That's very kind.

BASOLO: What was I talking about just before—

THACKRAY: —about Alfred Werner.

BASOLO: Oh, yes. Switzerland is where Alfred Werner was. They had a collection of Werner's compounds there. Steve [Stephen J.] Lippard is a very outstanding inorganic chemist. He does a lot of things—for example, he has people use x-rays to determine structures. Lippard decided to study the structures of this crystal compound, and not only did he do it, he published his findings in *Inorganic Chemistry* with Alfred Werner's name on it! [laughter] It's kind of interesting.

THACKRAY: Fantastic. Are those samples here?

BASOLO: Yes, they're in the cupboards.

THACKRAY: What are your plans for their future?

BASOLO: Well, I'm going to give some of the things to our archives, but I was going to ask you whether you would want some.

THACKRAY: Oh, we'd love to have those. Thank you. That would be great!

BASOLO: The x-ray structure showed that Werner and his people had—without x-rays and really anything at all—structured these compounds. It wasn't right on the dot. His predicted structure wasn't exactly perfect, but it was very close. That just shows how competent those people were.

THACKRAY: Yes. That's neat.

BASOLO: Yes. Werner, I guess, was an alcoholic. They showed me where he would stop at a bar for a drink on his walk home from the lab in the evening.

DAEMMRICH: Were the Inorganic Gordon Conferences always held up in New Hampshire or have they moved around?

BASOLO: Oh, no. They moved around.

DAEMMRICH: Were there ever any conferences in California?

BASOLO: Yes, in Sacramento, [California].

DAEMMRICH: Oh, right, and there was one in Ventura, [California] . Did you notice a difference in the conferences based on their location? Did it matter where it was held?

BASOLO: I didn't notice a difference particularly. The reason we moved was because the people on the East Coast were beginning to whine that the conferences were always held over on the West Coast. They felt that the travel was expensive to travel. That's why we moved, and now the conference is usually held in Newport, Rhode Island at Salve Regina University. It's a beautiful place.

DAEMMRICH: In the 1960s and 1970s, you got into the GRC governance. Did it start with the S & S [selection and scheduling] committee?

BASOLO: Yes. I guess I got nominated to the council, and then from there, I started to get some reviewing proposals and so forth. Eventually, I got on the board of trustees and then became chairman of the board. That's the general order.

DAEMMRICH: Was bioinorganic chemistry starting around that time, or was that a little later?

BASOLO: It was a little later. That's a very important area in inorganic chemistry, but it certainly wasn't so early on.

DAEMMRICH: What were some of the newer inorganic subfields coming around?

BASOLO: There weren't all that many, as a matter of fact. That's why I say it was the birth of inorganic chemistry as a whole. However, there was organometallic chemistry, which studies metals that form coordination compounds, react with organic molecules, and can build nice structures and compounds. Some of them are more interesting than others. However, there was never any real intent, at that time, to build them or make things of commercial interest the way we do now. A lot of our chemists are rapidly becoming millionaires because they do things which are applied, and occasionally, they come up with something that they patent.

THACKRAY: You joined the council in 1970. Can you talk about issues and concerns in your time in the governance? Did everything run along smoothly? Was it a piece of paradise?

BASOLO: [laughter] I don't really recall things all that well, but to the extent that I do, I don't think that there were really any problems. When I served on the board, we'd sit around and discuss what was going on, what should happen, what shouldn't happen, and so forth. I don't remember that there were problems.

DAEMMRICH: How were the relations with AAAS [American Association for the Advancement of Science] in those years?

BASOLO: Well even now, there really isn't all that much of a relationship with AAAS. Several years ago, the chemistry part of AAAS asked me to chair its chemistry program for a year. The only job I had was to make sure that they had a chemistry program at their annual meeting, and that's what I did. I got together three or four people and I arranged a one-day session. Although the topics were of interest, almost no one came because there were practically no chemists there, so there wasn't much interaction.

THACKRAY: There has been some mention here of being at Snowbird [Utah]. Was that just for a board meeting?

BASOLO: Oh, yes. It's outside of the city in Utah, on a mountain where people ski in the winter. I'm not a skier, but those who are speak highly of it. In the summer, the place is open to groups who wish to use the facilities and houses. It's a nice place for walks, very beautiful. Bob Parry lived there and suggested, "Why don't we have the next meeting at my place? It's very nice there." The board agreed, and we went there and had a very fine meeting. I don't know what the board is doing these days with their meetings.

THACKRAY: The Inorganic Conference moved to Brewster [Academy] in 1982. Was there any particular reason for that?

BASOLO: Yes—there is always a reason. The Inorganic Conference was in New Hampton, New Hampshire when it started. Being in a little town in the middle of nowhere was interesting. There was one grocery store where we'd go and buy the morning paper; and there was only one barbershop where the barber came in only once a week. That was about all there was to do in the town, so it really forced people to fully participate in the conference.

When we began to have additional conferences and other people had better facilities than we did, the inorganic chemists began to look around for a more amenable location. They suggested Brewster as a very nice place—it had a lake there. That was why we moved the conference to Brewster. I don't recall exactly how that was done. The conference there beforehand probably dropped out or went to another location. I remember staying there—it was a great location. Then all of the sudden, a Japanese group came, as far as I understand it, and offered Brewster more money, and we had to get out of there. The conference ended up in Newport, which is a hell of a lot better than Brewster. Newport is fantastic, so I'm sure the conference will stay there until they get kicked out.

THACKRAY: There's a letter I read that puzzled me. It refers to the proceedings of the conference. What would that mean?

BASOLO: I don't know what that meeting was about. [Alan H.] Cowley was responsible for wanting to add a Gordon Conference on the teaching of chemistry because all of the conferences so far had been on the research. I'm not sure if the letter had something to do with that. The teaching of chemistry GRC didn't last very long, maybe a few years. It sounded like a good idea at the time, but there were very few people who did both research and teaching. There were only two awards for teaching chemistry from the ACS [American Chemical Society]. One is for excellence in teaching, and the other is for excellence in chemical education. I got both of those because I was an anomaly, being interested in teaching and research. I think that there just wasn't enough interest in that conference.

THACKRAY: There is another interesting letter written by you that I stumbled upon. It sounded like you were stirring up trouble! Did you mean to do that?

BASOLO: I do not recall the particular letter, but I was trying to say that the superstars were always invited to lecture, so most of us had heard them elsewhere. In addition, I wanted to point out that other, lesser-known, but still outstanding chemists should also be invited to speak about their research. I think that should be done not only at the Gordon Conference. These are all very good people. When I was president of the ACS, writing occasional editorials in the *Journal of the American Chemical Society*, I had gone to a Gordon Conference and heard a person talk about his research. It was a very good lecture, but several of us had heard the same talk given at an earlier meeting—even with the same jokes!

DAEMMRICH: Looking to the future, what do you think is really important for the vitality of scientific research, especially inorganic?

BASOLO: Well, it's hard to predict the future. [laughter] It would be great if we could though. I think that it's becoming more and more clear, to the general lay person even, that chemistry is contributing in many ways. We keep hearing about, for example, new medication that takes care of this and takes care of that.

I think that there's a real future for chemistry. Still, chemistry has a problem that it hasn't totally broken out of yet. Chemistry occurs in a variety of different kinds of compounds. It is often times referred to as the central science because it gets involved in so many things and makes major contributions. However, people don't really hear about chemistry if its name is not used. I remember the first time I heard a person talking about genetic engineering. He was doing chemistry on DNA [deoxyribonucleic acid], but called it genetic engineering. At the end of his talk I said, "Hey, Tom, what the hell is this engineering stuff? It's genetic chemistry.

Everything you told us about had to do with chemistry. It didn't have anything to do with engineering." But the word 'engineering' has caught on, so chemistry has taken a bit of a beating because of that. Where it's going to go in the future, I just don't know.

DAEMMRICH: How about the future of GRC?

BASOLO: Well, I don't know. It's so large now; I would be very worried. The GRC has conferences all over, and not all of the chemists in other countries are happy about that. I've heard a couple of comments from them like, "What the hell! We can have our own damn conference. Why do you guys have to come and have your GRC conferences in our country?" So, I think that there is some resentment. On the other hand, I'm no longer involved. As I said before, I was trying to keep the number of GRCs at some reasonable number, but failed. I was trying to keep it at one hundred. Contrary to my opinions, others believe that bigger is better. Now, the Gordon Conference has gotten so big that, financially, it's in really good shape. They have money to bring speakers in from abroad, or at least supplement their travel expenses. The GRC can also supplement the expenses for graduate students, and of course, the board participants can have lunches. [laughter] GRC's size is not hurting the conferences, so it may continue to grow. I have no idea.

I wrote an editorial about the explosion of publications and likewise of conferences and lectures. I made the point that I heard a lecture at one conference, and the following week, I heard the same lecture. Then, the lecturer had to go to Germany where he gave the same lecture again. [laughter] The lectures were given by the same person. Not only could I anticipate what he was going to say, I could even anticipate the jokes that he was going to tell because he'd used the same ones.

Chemistry keeps growing and molecular biology seems to be doing very well, along with nanochemistry. That's what is happening in chemistry at the moment. It's hard to anticipate what's going to happen in the future.

THACKRAY: I think we've covered a lot of good territory.

BASOLO: I hope so. As I say, I really only was involved with the Gordon Conference years ago, when I was on the board of trustees. I still get involved in giving advice and opinions, but I no longer participate in conferences.

[END OF TAPE, SIDE 4]

[END OF INTERVIEW]

NOTES

1. B.M. Tassaert, “Analyse du cobalt, suivie de plusieurs moyens de l’obtenir á l’état de pureté,” *Annales de chimie et de physique* 28 (1789): 92.

2. Alfred Werner, “Beitrag zur Konstitution anorganischer Verbindungen.” *Zeitschrift für anorganische Chemie* 3 (1892): 267-330.

3. Fred Basolo, *From Coello to Inorganic Chemistry: A Lifetime of Reactions* (New York: Kluwer Academic/Plenum Publishers, 2002).

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