THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

# MALCOLM E. PRUITT

Transcript of an Interview
Conducted by

James J. Bohning

at

Midland, Michigan

on

9 September 1988

Malcolm E. Pruitt JH 3/15/96

BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

Oral History Program

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# MALCOLM E. PRUITT

1915 Born in Hamilton, Texas on 15 October

## Education

1941 B.S., chemistry, Abilene Christian University

## Professional Experience

| | |
|---|---|
| 1936-1941 | Hamilton County Public School, Texas |
| 1941-1942 | Clyde Independent Schools, Texas |
| | Dow Chemical Company, Texas Division |
| 1942-1943 | Control Chemist |
| 1943-1944 | Research Chemist, Gas Laboratory |
| 1944-1946 | Research Chemist, Organic Laboratory |
| 1946-1948 | Project Leader |
| 1948-1951 | Group Leader |
| 1951-1954 | Laboratory Group Leader |
| 1954-1962 | Director, Organic Products Development Laboratory |
| 1962-1967 | Director of Product Research |
| 1967-1971 | Director of Research and Development<br>Dow Chemical USA |
| 1971-1978 | Director of Research & Development<br>Dow Chemical Company |
| 1975-1980 | Vice-President |
| 1978-1980 | Corporate Director of Research and Development |
| | Council for Chemical Research |
| 1980-1982 | Chairman |
| 1982- | Honorary Chairman |

## Honors

| | |
|---|---|
| 1972 | Alumni Citation, Abilene Christian University |
| 1973 | Honorary Doctor of Science, Abilene Christian University |
| 1978 | Industrial Research Institute Medal |
| 1981 | Society of Research Adminstrators Award |
| 1982 | Commercial Development Association Award |
| 1983 | Outstanding Alumnus, Abilene Christian University |
| 1985 | First Recipient of Mac Pruitt Award, Council for Chemical Research |
| 1987 | Earle Barnes Award, American Chemical Society |

## ABSTRACT

This short interview with Mac Pruitt is concerned with the Council for Chemical Research and starts with an account of the foundation meeting at Midland and its origins in Pruitt's fear that U.S. chemical technology was endangered by poor cooperation between university and industry. During the course of the interview, Pruitt describes the working of the task force he set up which eventually lead to the formal establishment of the Council. The relations with the American Chemical Society are briefly reviewed, the membership and the staffing of the Council outlined, and the meaning of the logo explained. The conversation ends with Pruitt's assessment of the success of the Council for Chemical Research over the first decade of its existence.


## INTERVIEWER

James J. Bohning holds the B.S., M.S., and Ph.D. degrees in chemistry, and has been a member of the chemistry faculty at Wilkes College since 1959. He was chair of the Chemistry Department for sixteen years, and was appointed chair of the Department of Earth and Environmental Sciences in 1988. He has been associated with the development and management of the oral history program at the Beckman Center since 1985, and was elected Chair of the Division of the History of Chemistry of the American Chemical Society for 1987.

INTERVIEWEE: Malcolm E. Pruitt

INTERVIEWER: James J. Bohning

LOCATION: Midland, Michigan

DATE: 9 September 1988

BOHNING: Dr. Pruitt, you were the founder of the CCR [Council for Chemical Research]. I understand that the organization came out of a meeting here in Midland in 1979, but I'd like to go back before that time. What happened before September 1979 that led to that conference?

PRUITT: Around 1977 or 1978, there was a distinct feeling in the scientific community in the U.S. that we were about to lose our technology lead in the world. That Japan and Europe were catching up with us or passing us; getting more patents and, as a consequence, we were going to become second-rate in technology. I didn't necessarily think that was true with the chemical industry, but in other areas, maybe it was true.

Anyway, people were having a lot of meetings in Washington and Massachusetts and here and yonder, talking about this subject. They would invite a lot of well-known scientists and public figures, they would have these big symposia and they would talk about it -- I got invited to some of them -- then they'd go home. And that was it. A whole lot of conversation but no action; nothing. I got concerned about this. Maybe even the chemical industry would get caught up in this. So I thought that if this [problem] is real, somebody ought to do something about it.

Another focus of a lot of these conversations was that one of the main reasons that we were losing our technology was that industry and universities were no longer cooperating. In fact, they had almost become antagonistic to each other. I guess that was really true for two primary reasons. During the 1960s, all the funding for universities basic research was coming from the government, and they had more or less washed out industry as a source of revenue. Also during the 1960s when they were battling against everybody, "profit" and "industry" became dirty words. So, the universities kindly went their way and took their funding from government. At the same time, I think industry became rather sophisticated in their research efforts. Industry spent a lot of money and were pushing for more applied research, for research that would make money. Industry began to look down on the university; a second-rate research effort that wasn't really worth looking into. In fact, I might even have been a party to that myself to some extent; I don't know.

Anyway, for several reasons, industry and the universities

had parted their ways, hardly talking to each other. However, I knew back in the 1920s and 1930s, maybe even the 1940s, that industry and the universities had really cooperated with each other. For instance, Herbert Dow himself was a big university man, and most of his support came from people back at the university and he worked closely with them, closely with ACS [American Chemical Society]. There was a mutual agreement between the university people and industry people that they would work together. I think, because of that cooperation, in the 1930s they did come up with a lot of breakthroughs in chemistry in the U.S. But soon -- because of World War II, then the Vietnam war and all the other things -- that faded away.

My thoughts went something like this: if it's really true we're losing our edge, and if it's really true that university and industry are at odds and that's one of the reasons why we're losing it, then we ought to do something. If two friends are unhappy with each other, how do you get them working together again? Get them together and let them talk to each other. First, they would understand each other's problems; soon they would be happy with each other and be talking and working together again.

If we're losing our technical edge and the university and industry have a problem, we couldn't take on the whole field and phases of science. The only thing that we could really take on would be the chemical industry side; that's big enough. So, restrict it to chemical industry research scientists along with university faculty in the chemical sciences and engineering. Just take on that group because the whole was too big.

Also, if we're trying to get the parties together, who are the parties to be involved? The parties had to be in chemical engineering and sciences. They had to be the heads of the research community in the chemical industry and the heads of the chemistry and chemical engineering departments. They are the people that could bring about unity.

Let's do something about it. Not just a big symposium and all talk. If we're going to have something concrete, let's be sure that we have a follow-up. Whatever comes out of this, we're going to do something after that. I don't know what it would be exactly, but we're going to do something. We're not just going to talk; that's one of the criteria.

Ted Doan and I got to talking to my scientists about what we should do and how we could bring this about and we decided to hold a scientific conference lasting two and a half days. At that time I knew practically all the heads of the research departments in the chemical industry; I knew them personally. I called up a lot of those people, talked this over with them and got their opinions. And they thought it would be a good idea. I also told them that I was going to make a proposal for some kind of follow-up. We also decided that we were going to invite the heads of the chemical engineering and chemistry departments of

all the major universities, and we picked out a list. We didn't pick out everybody, but we picked out about 60. I don't remember exactly the criteria we used for this; mainly because somebody knew somebody in Dow or people in the other chemical companies knew somebody.

We made a list of about 64 universities the first time, and we also knew -- we set several precedents in this conference that's carried on -- these people didn't have enough money to attend conferences like this without some help. We decided we would pay their way to the conference, and meet all expenses so they could attend and not have to take it out of their research money. This was fairly expensive for the company. In fact, that conference cost me about $250,000. A lot of the people in the other companies asked me, "How in the world did you get your management to approve that kind of expenditure for something like that?" I said, "Well, you want to know the truth; I didn't ask them." But, I knew my management well enough... That they had a lot of faith in me, and they knew I was trying to accomplish something worthwhile. And when they did hear about it, they backed me.

Paul Oreffice was the keynote speaker; Earle Barnes, the Chairman of the Board, was very much behind it. So I didn't have any trouble with that. In fact, later on when we were having trouble getting a sponsor for the second meeting, Paul said to me, "Why don't you hold it again?" I said, "No, I don't want to do this; I want this to be a chemical industry thing, not a Dow thing. We just happened to get it started."

We didn't know exactly what to put in such a conference, but we felt like two and a half days of just talking problems wasn't a very good idea. We decided to have two days of technology, and then only a half a day of broaching the problem that we were going to address from here on out. But we wanted to get everybody thinking together about a lot of technology. We picked out what we thought to be some of the leading edges of the main technologies, like polymers and agricultural chemicals and biotechnology and so on. We looked for the world's authority, in every case, and we got some excellent speakers -- some of them Nobel Prize winners, by the way. And for two days, we talked technology. Then on the last day, we tackled the subject of bringing university and industry together.

From the very beginning, you could see that we did have a real problem because everybody, from the university particularly, had a big question; "What are these guys up to now?" "What's fixing to take place?" "Anybody who would invite us here and pay our way, must be up to some scheme." There was an aura of suspicion or wonderment all through the conference, which you would perhaps expect under the circumstances. Most of the people had never met each other. We not only found that there was a difference between industry and universities, but there was a big difference between engineering and chemistry. Some of the people in the schools had never met each other. In some cases the head

of the engineering department and the head of the chemistry department didn't even know each other -- never spoken to each other, which was just unbelievable.

Also we found that there was a big gap between public universities and private universities -- in funding and a lot of things that I never even thought about. There were more schisms among that group than you could shake a stick at. We didn't even think about this, but a lot of the chemistry professors got their necks out of joint. They even called a special caucus of their own one night. They wanted the floor the next day, which we wouldn't give them until the program was over. The reason -- which I never even suspected -- was that we picked the best speakers we could for the program, but not a single one of them was from a chemistry department. Now this tells you something because, if you go cover all of the main topics in the chemical industry and not a single one of the major speakers is from a chemistry department, are they in mainstream or not? Well, I would have certainly invited some from chemistry departments to speak on fundamental subjects. Chemistry departments tend to work on the very fundamental things and then it floats over into polymers and biotechnology, whatever; which is some good, some bad. But that's the way it is, and it's not all bad.

This whole meeting was one big diverse group maneuvering and playing their parts. I never dreamed that there would be that much suspicion and concern. This just shows you the lack of understanding of people who haven't talked with each other for so long. CCR over the period has done an immense amount of good in bringing together all these people. Now we can go into any of these meetings almost and propose most anything. But then, anything we talked about, they would tense up and wonder, "What are you fixing to do to us now?" In fact, the chemistry departments, as I said, had a special caucus that wanted to present their specific problems. We did let them speak the next day at the right time, but we had answered a lot of their questions after the session. Somewhere towards the end of that half a day when we talked about our problems and how to better understand each other and how to cooperate better, I made a proposal, a chemical industry proposal, that we form a chemical industry research institute where we could get together and learn about each other and where we could work on funding for the chemical sciences and engineering.

Several of the professors were very opposed to that because they thought they already had it. They really didn't understand what we were trying to do. They thought we were only trying to come up with funding those areas that we were specifically interested in and eliminate all basic research. That's what they kind of got in their minds. I could see how that was possible. Some of them got very unhappy about this, were very opposed to anything like this. In fact, one professor got so unhappy that he gave word he didn't want Dow recruiting on their campus any more. However, after later explanations of what was happening, that same professor became a very important part of CCR.

So, this first meeting was all full of suspicion; and on both sides. I invited a lot of my research people to the dinners and luncheons, and I would say about 90% had little respect for university research, and said so. Frankly, earlier I had felt a little bit the same way. But I knew there was a lot of good people out there in the universities.

BOHNING: Du Pont had a long history of bringing academic consultants in. Was Dow doing that?

PRUITT: Yes, we've had consultants here, but this is a very special field. Du Pont has very special schools, very good schools. They pick and choose. So did Dow; certain professors who are good do come and work closely with the company.

CCR now has a membership of 164 Ph.D. granting schools and a lot of their professors have never been in industry. Some of the people who were opposed to what we were proposing were some of the best industrial consultants. They felt we would get the funds and then dole it out to people that didn't deserve it. That would cut them off from support they'd worked hard to get from Du Pont, Dow, and other companies. All of a sudden, we were trying to figure a way to cut them down and disperse the funds around. Now we were going to disperse aid around somewhat. We wanted to get everybody involved. There are a lot of good researchers out there that don't have much opportunity to get exposed, and we wanted to get everybody involved; and we have. We think practically every university in the nation is now a member of CCR. Occasionally, we run across one that I never heard of, but practically every one of them is a member. And what they like about it is this associating and talking with their counterparts in industry. They have to pay a small membership fee of $1,000. But, in return, they get their way paid for two of them, three, maybe four of them, to this annual meeting. Plus they get some discretionary money; money that they can do whatever they want to which is completely free to them.

Now CCR as such doesn't take credit for this. But since CCR was formed, the funding from industry -- chemical industry and related companies -- to the chemistry and chemical engineering departments has almost doubled since 1980. Back then, it was about $10 or $12 million; now it's up around $25 million. We can't take personal credit because we want most of the funds to go one on one, not to us, but I think we've had a big influence. I think we can take a lot of satisfaction in that.

BOHNING: Well, let's go back to that first meeting again. Did you see any change in attitudes during the course of those two and a half days?

PRUITT: Yes, somewhat, but not very much because for two days we talked technology. The thing that disturbed a lot of people was because we didn't have any chemistry speakers. The last half day was when we really got into the problems, where people could speak their piece and stir about, and I made my proposal. Then we didn't have enough time left to really find out.

Well, I proposed that we form this entity. Number two, that we have a follow-up meeting and I would appoint a task force. I appointed a task force composed of both university and industry people. Also that we would get a sponsor to hold a second meeting, other than Dow. We would have to work on that and let them know. I appointed a group to arrange for another meeting. At the same time, a working task force took all the questions, answers, and problems we ran into, and were going to meet to digest everything and come back to the next meeting with a proposal of some sort. They were going to take my proposal -- reactions to it, anything they picked up, any of the questions and answers, and all that -- and they were going to study that for a year. At the next meeting they would make a proposal to us. I had a hard time, for a while, getting anybody in any other company willing to sponsor such a meeting. And then Bob Lovett of Air Products stepped up and offered to host it, and his boss, Ed Donley, Chairman of the Board of Air Products, was very much behind it too. So we set up a meeting for the next fall hosted by Air Products and we had a task force.

[END OF TAPE, SIDE 1]

After that first meeting I got three folders full of letters, primarily from the university professors pouring their hearts out telling us what their problems were. This was very important to our task force. Some of the letters were seven pages long. I have given them to CCR headquarters; they've got them now. They were very informative. I read them with real interest; I learned an awful lot about the universities and their problems from those letters, because they really poured their hearts out. We had hit a really important nerve. I was just amazed that practically every one of the universities responded by letter. I might have said -- and I don't remember -- at the end of the meeting, if you want to tell about what you think what the problems are, what you consider what we ought to do, let me know. I got the letters by the dozens.

BOHNING: What about your industrial colleagues, did they respond?

PRUITT: Very few, but some did. That's kind of natural; they're too busy and it didn't touch a nerve as it did in the universities. I didn't appreciate what that nerve was in the universities. Every one of those professors, some may disdain profits, but their whole existence depends upon whether they raise money or not. It is just like a little bird flying around

out here. You see how pretty it is, singing away and all that, but if he doesn't work every day and get his food, he's going to die. The same thing with the professors. Nobody raises money to back his research but himself. Not his head. Not his dean. Not his buddy. Only himself. Everybody has got to raise his own money. And they spend, frankly, way too much money, too much time, on having to raise their funding. I just read an article -- maybe you saw it -- about research papers. They live on publications, but we are getting to the point where these publications are hardly worth reading. They're just filling up volume after volume. They divide their research up into little pieces so they can publish ten papers instead of one. I think the universities need to stop that. They need to look at a different criteria for promotion rather than on the number of published papers.

I didn't realize that these people were so dependent upon their individual selves to raise funding for their research. That's the reason that they're so sensitive to all this. Because, if they get cut off anywhere, they don't make it. Like the birds they just die. Another thing, a lot of the best researchers are the poorest money-raisers, and some of the sorriest researchers are the best money-raisers. I guess that's the way life is. But there are a lot of good researchers out there that would love not to have to worry about raising money and just do their research; same way in Dow. We have a lot of good researchers out there that can't sell themselves at all, but they're amongst the best researchers we got. But we've got supervisors who can step in to see that their wares are promoted, whereas, in the universities, it's strictly up to the individual. They bring it on themselves somewhat because they want to be so independent. They don't want anybody telling them what to do and their department head has very little control.

A lot of things I'd like to see change in the universities, but as of now it's very difficult. The department head has no control over anybody in his department; they're free spirits. I think a department head should have much much more authority than he's got at present. I don't know whether that will ever happened because of academic freedom and that kind of thing.

BOHNING: Did you have a balance of industry/and academic people on that task force?

PRUITT: Right. In fact, I've got a list of them here somewhere. We had some excellent people. We had an equal amount of university and industry people.

BOHNING: Did they meet here at Dow?

PRUITT: No, they never met here at Dow. Most of the time they

met in Washington. When we started this movement, the ACS was very concerned; maybe because they felt they should have been doing something like this. Perhaps they thought we were fixing to cut into their bailiwick or show them up or something; I don't know. Anyway, a lot of them got very concerned and were very much opposed to what we were doing. So we immediately started getting them involved with us. We had most of our meetings at the ACS headquarters for a long time. Task force, even a lot of other meetings, we held at ACS headquarters with their people present. We tried to tell them that our function was completely different. I finally invited the president of the ACS, Bill Bailey, out here one time to explain a lot of this to him, which he accepted fully. So ACS became more and more understanding.

ACS has an individual membership and its task is to take care of the individual. That's really their job. It's an organization to look after the welfare of individual chemists and the profession. CCR does not have an individual membership, but an organizational membership. Our purpose is to protect, not individuals at all, not companies at all, really, but chemical science and engineering. And to bring about an understanding between the two parties for the purpose of uplifting the chemical sciences and technology for the good. That's the whole purpose. Not to help out individuals, not to help out individual universities, nor individual companies. I think everybody has pretty well bought that now.

At the second meeting, the task force made a proposition on raising funds. We were going to form this institute, and we were going to try to raise quite a bit of money. The suggestion was that it be given out based upon research proposals. Similar to NSF or the ACS Petroleum Fund, but they didn't want that. The universities didn't want it, nor did the companies. We were trying to help the universities do basic research where no company had any rights to anything. That was going to be our thrust. And we were trying to help the whole area of science and technology.

The task force had to change the whole proposal, which they presented at the third meeting, and then everybody bought it. But we did have a very lively debate and argument on how best to accomplish our goal and purpose. It was very cordial, and you could see the trust developing in that second meeting -- it improved 100%. We were just arguing about what we wanted and didn't want, and what would best fit the problem. There was an awful lot of discussion and disagreement, but done very cordially without malice, bitterness, or anything like that. It became a very democratic process and we finally arrived at the way we would do things. A lot of it is what we had envisioned in the first place. The main thrust is to bring about communication and understanding between university and industry people working in chemical science and engineering. That's the main thrust; and to help uplift the profession, and to maintain our leadership in the world in that area. I think everybody bought that.

At the third meeting we had our format on track. What everybody liked was being able to chat. The chemistry professors liked chatting with each other; the university engineering and chemistry people chatting with each other; particularly, university and industry people chatting with each other and comparing notes. They kept, and this is true for the later conferences, asking for more time, more coffee breaks, more time to chat and less program. That is really what they want. To mingle, talk, compare notes, get acquainted. Nowhere in the world can they do that. Nowhere do you find a place where all the heads of the chemistry and chemical engineering departments are meeting in one place, along with the heads of the research departments of the chemical companies. Nowhere! It is unique, and they all think it's just fantastic that they can do this.

BOHNING: How rapidly did the membership grow? Let's look at both sides. How rapidly did the academic membership grow?

PRUITT: Well, we formed it in 1980 and started recruiting in 1981, right in the middle of a recession. I kept telling everybody, "Look, we're going to be lucky to get any money from anybody. Everybody is fighting for their lives out there." It was surprising how much response we got from the chemical companies. Increase in funding and the response in membership under those circumstances. 1980 to 1983 were terrible years for the chemical industry; and we got, I think, 44 companies to become members, which is not bad at all. The universities jumped up to well over 100, just like that. I don't remember the figures exactly, but I think about the third and fourth years it was 150. And now it's increased up to 164. Most all the universities were in there pretty early. We now have 54 companies.

When we started, I knew every one of the R&D directors in the companies. People who controlled the R&D, who had good connections in the company for the right information and approval. However, as time goes on these people change or retire. New people move in, many new to the job, or have little knowledge about CCR and are not that motivated to make CCR succeed. Slowly the representatives can drop in level or interest. This is something that the Executive Committee and governing board must work on. To keep high level, highly motivated people from industry involved. So in 1988 the industrial membership began to drop. Also consolidation and buyouts cut our membership. For instance, Signal bought a company, then Allied bought them. So that was three companies in one. There were several similar examples. Gulf was bought out.

Last year, we got Jim Porter as Chairman of the Board of CCR. He retired from Exxon as director of research. He went to work on the membership and now it is up to 54. So it's really up this year. We have the CSE Fund [Chemical Science and Engineering Fund] which is the glue that holds the organization

together. Around $750,000, and we pass that out every year to the university schools, based upon the number of their Ph.D. students. They love that money because they do whatever they want with it. We give it to the head of the department and he can give it to a young professor, he can give to travel, or whatever.

So, the organization has really come along; we've got much more influence now. It's known pretty well everywhere. We're making a bunch of tapes, like the Ames tape on carcinogens. What we're trying to do is to educate both sides of our membership. Also, in providing tapes that will educate people. If we're going to raise the image of chemistry, we've got to get some facts out there that everybody could use. The tapes are one way of doing that.

BOHNING: The task force existed for one or two years from the time the 1979 Midland conference ended until it...

PRUITT: One year.

BOHNING: I see, they didn't work beyond September of 1980? So it was 1981, wasn't it, when everything really started to take shape?

PRUITT: Yes, I go by conferences. Eastman Kodak was the third conference, in Rochester, and that's where we agreed on the whole format. CCR actually formed in late 1980. We called it the Council for Chemical Research. At first it was the Chemical Research Council, but somebody already had the trade name CRC and we had to switch. The first annual meeting of CCR as such was in 1981 in Houston; Shell, Rice University and the University of Houston were the hosts.

BOHNING: Who was responsible for that name, or was it a group effort?

PRUITT: The task force. In 1980 we formed a Board, and I became Chairman (1980-1983). After that, the Board did most of the work. I'm sure we had task forces or subcommittees to do certain things.

BOHNING: Who funded the task force during that first year? Everybody who flew into Washington for the meetings; did they pay their own expenses, or was there other funding for the task force?

PRUITT: Right after the first meeting, the task force decided that industry people were to pay their own expenses. The university people were paid. We got NSF to help fund us. NSF funded the university side for us until we got ourselves to a stage where we could start collecting dues.

BOHNING: You collected dues, starting the second year?

PRUITT: Yes, we started collecting dues in 1981. Somewhere about then the companies put in a little money. One time we asked for $5,000 from the companies to tide us over. NSF, I know, funded the task force university people, which was very nice of them.

[END OF TAPE, SIDE 2]

This is our logo (1). I had that made at the very first meeting. I figured people could rally around an idea if they could see something familiar. So I called in a Dow public relations man, a fellow named Rich Long, and I told him I wanted a logo for our first meeting; something we could keep if we continued. "I want you to portray the university, industry and government working together in concert, but yet independent of each other. We want to be sure that the university and industry are working together, but neither is being dominated by the other nor by the government." He came up with this. If you will look at this logo, it has three concentric parts working in concert but they don't touch. [Pruitt shows Bohning the logo] I thought that was excellent when I saw it and said, "That's exactly what we want." We had this big logo over our speaker's stand and now everybody recognizes it. I think it is very important to have something to rally to, a logo or symbol. And it has been our logo ever since, although I find that a lot of people don't know what it means. I've explained it a time or two but the thing about CCR is that there is a constant turn over of people, which is both good and bad. Certainly, you get more people acquainted with each other. The university and department heads are changing constantly, and in industry people are retiring, or their functions are changing, so every year there are new people. Now there are less and less regulars. There are still some people who have attended every meeting since 1979. 1991 will be our 10th Annual Meeting of CCR. The plans are now for Dow to host that meeting in Midland. Maybe at that meeting we can take a look back and see if we have been on track and are accomplishing the original we set out to achieve.

BOHNING: That was the question I wanted to ask. How do you feel about the venture after all these years?

PRUITT: Oh, I feel that it could hardly have gone any better. I think a lot of other people feel the same way. CCR turned out

to be a whole lot like we had envisioned. Some changes here and there but by and large, it's exactly what we wanted. You can't believe how well these people work together today. It's just amazing: when you go into the annual meeting now compared to the first two, especially the first one. Almost bedlam at that first meeting, nobody trusted anybody. Today, the only thing I regret is that we are not penetrating deep enough in our organizations. I would like them to be getting down to touch every professor in the chemistry departments. Getting down to touch every scientist in both the university and industry. That`s not easy but we are doing it slowly. They are proposing some meetings now that may help.

Another cardinal rule that we made early on was that we were not going to build up a big staff. It was going to be a voluntary organization. So we have only one executive director, and two secretaries, that's it. The rest is all done by volunteers, all the committees, the board, take no pay. Early on when I was chairman we made the rule (which is not in our constitution), that the chairman of the board should alternate every other from industry to university and back. In 1982 when I stepped down as chairman, I was ready to step down, Jack Kinsinger who was in line to be the next chairman suggested that it should be industry. "No, we don't want that. This is going to be a university/industry thing and we are going to have university person every other time." Now that`s just a kind of rule that developed amongst us. See, this year is Chuck Galloway for industry and the next one will be Judd King for the university -- just an unwritten rule. By the way, we have found excellent leaders in the universities. In fact, right now, I would say there are as many good leaders in the universities as there are in industry. Most of the university people that have been working real hard on this -- when we first started working with them they were heads of chemistry or chemical engineering departments and today a sizeable portion of them are deans, provosts, or something like that. That just shows that they were very high caliber people. Take a fellow like Judd King, people like that, are excellent. So we have no problem with them being leaders in our organization. We continue to have a lot of good people coming up in the university side. For instance, Ivan Legg, who is running the Ames tapes project, he is Provost at Auburn, right now; excellent man, hard working, he works harder than any industry man. This has been a good policy, to be sure the organization is not dominated by either side and I think, in the long run, people appreciate that. It just builds up much more trust, you know, when folks realize that they are going to share things equally.

I feel very good! Every time I go to a meeting people ask me about that. Now let me say along with this that, although I'm given credit for starting CCR and I guess I did by starting the meeting in Midland, there has been a lot of effort put in by good people to make this thing go. They have really worked hard, and did a lot of good work. I can name them by the dozens and that's what is good about it. We decided to work different than ACS.

ACS is a powerful organization and has a lot of influence. But because it has so many functions and because time has allowed it to build up a large staff, it necessarily is slow to act. Also it has so many individual members to please.

We decided CCR would be well focused, with a small staff and the ability to act quickly. CCR can make a decision very quickly. Either by meeting or by phone. Our executive director doesn't run the show; the chairman of the board and the executive committee runs this place. The executive director is just the man to help hold the thing together, put the pieces of paper together and look up stuff and to do the work. He doesn't make the decisions; when we hire one that's the first thing we tell them. "You serve our Board and Executive committee, don't try to run the place, or you will be in trouble." That's the way our organization runs. We don't intend to hire very many more people. Of course, if we take on a lot more things we may have to pick up another person here or there. But that's what makes us so different.

Now, we are not nearly as powerful as ACS but we are beginning to influence a lot of people, because we can immediately go directly to both sides to find out what they are thinking. We can go to industry or to the universities and we can quickly find out what the people are thinking. With ACS they can only go to their membership. We've got a lot of advantages, and a lot of uniqueness. ACS has come to accept CCR as an ally rather than as a competitor. We work together, we give money to them, they give money to us. We knew at the very beginning that they were concerned, so we made every move in the early stages to try to overcome this. We included them in every move we made, they were on our task force, we invited them to every meeting, to speak and be a part of it, to understand what's going on. If they don't like something or think we are overstepping our bounds, they let us know.

BOHNING: Do you have a similar arrangement with AIChE?

PRUITT: Yes. They are for us. But they are a much more of a loner-type group than ACS. We don't have quite the close relationship but still its all right. They come to a lot of our meetings and have been very much involved.

BOHNING: Well, you have answered most of the questions that I had. So is there anything else you wanted to add?

PRUITT: About the early history? I believe I've covered just about everything. I really think, and more people come to us and say this, that we hit a nerve, a needed nerve at the right time. Something was needed. CCR is serving a purpose and most people are very happy with everything that has taken place. One thing

for sure, we`ve got to maintain membership, particularly in the industry side, at a very high level.

Dow continues to be a strong supporter. Paul Oreffice and Earle Barnes were very strong backers. In fact, when I left Dow I debated whether I would just leave it and do something else. But Earle Barnes, Paul Oreffice and Ted Doan, all three called me and said, "Look, you started something, now we think you should finish it. So I did spend three years almost full-time to help gel the organization. The experience has been very pleasant and rewarding. Because of this I have many new friends in universities and industry. We have all been working for the common good, for the welfare of our nation through chemical science and technology.

BOHNING: You had mentioned earlier that the funding for the first meeting came from Dow but, you didn't tell the people above you. What was their reaction when they found out?

PRUITT: Very supportive. In fact, when I asked Paul to be my keynote speaker he said, "Great! Fine!" I told Earle and they were all for it. This was not my intent or in my mind at the time but, as time has gone on, this has been a big boost for Dow. Worth every penny. They probably knew that themselves even then. Dow right now, I understand, is number one in campus recruiting. I'm sure CCR has had something to do with that; of course, not everything. The universities really appreciate CCR, and they really appreciate Dow's leading the project. However, CCR is a team effort of many hard working people, both industry and academia.

BOHNING: Well, I think I'm going to close now. Thank you for spending the time with me this afternoon to talk about the CCR. Thanks very much.

PRUITT: Well, I appreciate the Beckman Center because I am a real advocate of history; in fact I wish Dow had done more to preserve history. Have you seen this book that has been written on Dow research (2)?

BOHNING: Yes, I had heard about that indirectly. There is a lot of information there.

PRUITT: Sure. As time passes, people will be digging into it.

BOHNING: I've used it. I've used it many times.

[END OF INTERVIEW]

## NOTES

(1) Logo of Council for Chemical Research. See BCHOC Oral History file #0081.

(2) R. S. Karpuik, Dow Research Pioneers: Recollections (Midland, Michigan: Dow Chemical Company, 1984).

INDEX