

Association for Diplomatic Studies and Training
Foreign Affairs Oral History Project

MYRON B. KRATZER

Interviewed by: Charles Stuart Kennedy
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INTERVIEW

Q: Today is the 25th of September 1998. This is an interview with Myron B. Kratzer. This is being done on behalf of the Association for Diplomatic Studies and Training. I'm Charles Stuart Kennedy. To start at the beginning, tell me when and where you were born and something about your family.

KRATZER: I was born in New York City, literally in the city in Manhattan in 1925. My father was a traveling salesman, which meant that, in those days, he was gone for weeks at a time because his territory was in Oklahoma, Missouri, and Kansas, and he was on the train all the time. So in 1929 when I was four - it was kind of a fateful year, of course - we moved from New York, which I really never got to know, obviously, to Oklahoma because of the family. I grew up in Oklahoma and went to high school there. I started at sixteen at the University of Oklahoma in 1941, another kind of fateful year, so I was not that close to military service.

Q: I'd like to go back just a touch.

KRATZER: Sure.

Q: When you were in elementary, high school - in the first place, were you part of a larger family?

KRATZER: I had an older brother, six years older. Although we were close, we weren't that close at that age. My father traveled all week long so we saw him on weekends only, but it was a close family.

Q: But your mother was a homemaker?

KRATZER: My mother was a homemaker. In those days there were not that many working wives.

Q: Moving over to 1929, would you call yourself a child of the Depression?

KRATZER: Well, fortunately, I guess - certainly fortunately - my father was never unemployed. We were by no means well off but never unemployed. As a traveling salesman, I guess in those days, it was a fairly comfortable living. We eventually - I think about 1940, or so - had enough funds to buy a house. Until then we were in middle-class neighborhoods.

Q: What line of goods was your father selling?

KRATZER: He sold ladies underwear for a well-known firm, which I think still exists, called Kaiser. The household was always full of the samples stacked from floor to ceiling. That's kind of a staple and, therefore...

Q: Oh, absolutely.

KRATZER: I attended elementary, junior high, and high school in Tulsa.

Q: What were your interests?

KRATZER: I was single-mindedly interested in science. Well, I shouldn't say single-mindedly because - I don't think I am kidding myself - I was interested in school in every subject, especially foreign languages and what was called social studies in those days. I was a terrible athlete and, when the kids chose their teams, I was the last to be chosen.

Q: I know the feeling. Ha. Ha.

KRATZER: Scholastically, I guess I was pretty much at the top of the list in all these schools and subjects. I skipped a grade in elementary school, and I guess I skipped another grade, so I skipped a grade and a half.

Q: That sort of threw you out of the social spin, didn't it?

KRATZER: Not really. No. No. Somehow I never had the feeling that I was, though my classmates were a year and a half older. I never had that feeling. We are Jewish, and I think that makes a difference in the sense that, in those days in particular in a medium size town like Tulsa, your friends tended to be not so much people of your exact age or even of your class, but the other Jewish kids you met in Sunday School and related activities.

Q: Was your family practicing?

KRATZER: Moderately. We were very reformed but we went to services from time to time at religious holidays. Not devout, but very committed.

Q: Was there a Jewish community in Tulsa?

KRATZER: Yes, there were probably two to three hundred families, two congregations, and a lot of people of considerable wealth because of the oil industry. We were not favored by that but there was no division on economic grounds. It was a very tight knit community, very generous.

Q: What about reading? What sort of things did you read?

KRATZER: Well, looking back on it, I didn't read what would normally be considered classics. I read science books, not deep science at that age, but books about scientists and about science. There was a series of books called *Tom Swift*.

Q: Oh, yes, Tom Swift and his electric submarine!

KRATZER: I read all those, and a little more general literature.

Q: How about classic works such as Astounding Science Fiction?

KRATZER: No. I didn't read those.

Q: Good heavens! Not even the science fiction of the Pope Fiction?

KRATZER: No, I never read a science fiction book or much less the classics like H. G. Wells. I'm not even sure I knew he existed in those days. I was very interested in science, and I read science biographies and books like that.

Q: Have you ever stopped to analyze what brought you towards science?

KRATZER: Well, my brother who was six years older had begun - again on his own - studying engineering at Oklahoma University. He was good in science. But I don't really think that was it. We weren't that close. I just loved it. That's it. I had a chemistry set, and that was my major hobby, and a little bit of electrical things but not as much as kids today have. Math was very easy for me so, since I was a lousy athlete and a good math student, there was never any doubt in my mind.

Q: What sort of science were you getting in high school?

KRATZER: Well, we had chemistry but I don't recall having biology. I think in junior high we had a general science course that included some biology. I remember looking at things under microscopes and so on but biology in those days, in my memory at least, was not what it is now. It didn't sound very scientific. It wasn't quantitative, and I was

drawn to quantitative things. I was drawn to chemistry more than anything else. I loved physics, too, but chemistry was what drew me.

Q: Well, you graduated from high school at sixteen in 1941?

KRATZER: Yes, I started school at Oklahoma University.

Q: What was Oklahoma University like in those days?

KRATZER: It was a good school, looking back on it. I think the instruction was really - of course, I don't have a basis for comparison - serious and first class. There was socializing but not to the exclusion of studies. There were fraternities, and I was in one. In those days, fraternities were very, very much segregated. Of course, Oklahoma was a Jim Crow state so that there were no minorities, no Black students at all. I was there long before that changed. There were two Jewish fraternities and maybe 20 or 30 non-Jewish, and I was in one of the two Jewish fraternities. It was a matter of pride - almost of necessity - that we win the scholarship cup every year, which we did. I thought it was a good school in instructional terms. Whether it did much in the way of research, I wasn't conscious of.

Q: Well, I would have thought that with petroleum being so important - and that means chemistry, I would think - there would be a mutual attraction.

KRATZER: Petroleum engineering was a strong point as far as national reputation was concerned. My brother graduated in petroleum engineering. I was never drawn to it. I was interested in it because everyone in Oklahoma was interested in oil in those days. I wanted something more technical than petroleum engineering impressed me.

Q: What was your major? Was it chemistry?

KRATZER: Chemical engineering. That was a line I drew in my mind because I thought that, as a chemist, about all you could do was teach school, which I didn't want to do. There was no serious effort at counseling in those days. I never saw a counselor. I think, in hindsight, I had a lot of invalid ideas about what you could do with science, where it might lead, and the like. To me, chemistry was something that didn't have much of a future. You would just end up as a school teacher. As a chemical engineer, you had a chance to end up doing things and creating things, and that's what I chose.

Q: Did you finish college?

KRATZER: Having started at sixteen, I was close to the end of my second year when I became eighteen. Of course I registered for the draft at eighteen but there was no immediate pressure to be drafted. I saw a notice that the Army Air Corps was looking for students with two years of college to become weather officers. They would be, if selected, inducted into the army and sent to one of six or seven major universities that were training army air corps weather officers. I think Chicago was one, Cal Tech was one, and

probably M.I.T. Meteorology had a very limited availability as a curriculum in the U.S. in those days. Most of the advanced meteorologists came out of the Scandinavian countries. In any event, I signed up for that and, in a short time, I was selected. I joined the Army voluntarily as an enlisted person about a month after I was eighteen with a letter in hand that would have sent me to an Army Air Corps weather school. I was sent to basic training in California in preparation for that. It turned out that somebody had really sold the Army a bill of goods. They were in the process of training enough weather officers for the next century, if they lived long enough! By the time I got into and out of basic training, the program had shut down and, instead, there was something called the Army Specialized Training Program, which was made available to us as a sort of substitute for the weather school that I expected to go to. I just moved almost naturally into the ASTP, Army Specialized Training Program, and was sent to Ohio State University to continue chemical engineering, which I had left only a few months before. I continued that from the fall of 1943. I went into the Army in March of 1943 and went into the basic training and a month of doing nothing and just a holding pattern at Stanford, which was very pleasant. I was then sent to chemical engineering at Ohio State; that would have been in the fall of 1943. In the spring, probably April or May - Ohio State had the quarter system, so it didn't fit in with most - this course was not quite completed. There was still one quarter left to go, and we were all subjected to a series of interviews, which we didn't know the purpose of. At the end of it, we were told - we were a group of about 30 - with one or two exceptions, which are easily explained at a later date - that we had been selected for the Manhattan Project, which we had never heard of. We were sent by train one night to Oak Ridge, Tennessee, which wasn't on the map, and interviewed further. The group was split into about half, and half of it was sent by train with one GI who had the orders to Los Alamos near Santa Fe. The other half stayed at Oak Ridge. That's how I got started. At that point, I guess it's fair to say that I had probably two-thirds to three-quarters of my chemical engineering education behind me. I hadn't completed it, so I wasn't a college graduate but I had most of the basic math and physics. It took me a year to complete my bachelor's when I returned to college later.

Q: You were at Los Alamos from?

KRATZER: From the early summer, probably June, of 1944, as a GI, as were most of the technical staff at Los Alamos. Obviously, with one or two exceptions, the GIs were at the bottom of the totem pole. Numerically, most of the technical staff at Los Alamos were GIs like myself, not officers. They were chosen largely from various schools, not all from Ohio State. I was there as a GI until being discharged in March of 1946. At that point there was never any doubt what my next move would be. It was to return to school to complete my work and get my degree.

Q: What was the atmosphere at Los Alamos when you arrived?

KRATZER: It was amazing. It was full of enthusiasm, expectation, and hard work, and quite a lot of fun in the sense of people getting together for entertainment. It was closed but not as closed as some of the accounts have it. We could leave it but we couldn't go home. We could go down to Santa Fe. We were a common sight on the streets of Santa

Fe, about 25 miles away. The logical question, is did we know what we were doing? The answer is that we did. We couldn't have done the jobs that we had if we hadn't known what they were about. There was perhaps a battle that you read of from some of the accounts between Oppenheimer and the military authorities as to whether the junior staff should have access. He (Oppenheimer) clearly won, so that certainly I knew what I was doing and what the project was for. We were all informed from within a week of getting up there and getting assigned to a job. This was kind of funny itself because I kept saying I wanted to do chemical engineering. It wasn't the place, in senior staff's view, where any chemical engineering was being done, but they scratched their heads and came up with a job that really was in the category of chemical engineering. It was part of the Chemistry and Metallurgy Division. It was directly connected with - if you want me to take the time, I'll tell you what it was...

Q: Sure.

KRATZER: If the test, called Trinity, had not worked, then the plutonium that was to be used in it would have been essentially all the plutonium in the world at that date, at least in the United States, and of incalculable value. Our job was to come up with a system to recover it. This involved initially a great big pressure vessel. The test was to be conducted in a pressure vessel, which if there had been no nuclear explosion, would have contained the explosion of the high explosive. We would then go in and dissolve out the stuff plastered on the walls and recover all the plutonium. At a later date, they decided not to do it in a pressure vessel for a lot of scientific and other reasons but on a tower instead. That would have involved us going in and sweeping up the desert floor and recovering what plutonium we could, which would have been far less but still worthwhile. That was the job that our small group of chemical people, headed by civilian scientists from the University of California, had. It wasn't weapons design per se but it depended on knowing what the project was all about. There was to be a nuclear explosion, and it wasn't known what the consequences of that would be.

Q: Did you get any feel for Oppenheimer or General Groves?

KRATZER: Well, yes. It was a small enough operation so that obviously I - well, you could hardly say that we were personal friends - saw them. Groves wasn't there full time but he was back and forth, and he was normally quite visible. He was a big man and made a point of being visible, even to the extent of visiting the barracks where all the GIs lived. Oppenheimer was around all the time.

Q: This is exciting.

KRATZER: The thing that sticks in my mind is - I don't think my memory is playing tricks on me - I guess it took about a week after I got assigned to a group to have it explained to me what the project was about. I had a GI buddy who was in a different group who was going through a similar experience. He explained what his job was, and I said when this is over, when we do it and have it - and I don't think anyone ever doubted its success - the war will be over in a week. I think I was off by three or four days. I also

really felt that, naively, - as my training in history and that sort of thing was hardly extensive - it would end war.

Q: It has.

KRATZER: It has ended a certain type of war.

Q: Prior to going there, had you been aware of the literature about heavy water? This was not a big secret.

KRATZER: It was Sunday Supplement material. I recalled, after the project was explained to me, that I had read the Sunday Supplements about atom splitting, which was a common term in those days. I certainly must have read about atom splitting, and probably about nuclear fission. Fission was not a word that was on the tip of my tongue, so I can't be sure about how much I already knew. I remember being asked by my boss, who was a fine guy, "What do you know about uranium?" I said, "Well, it's radioactive." He said, "That's true but that's not what we're interested in." My first reaction was not the right one. I didn't say, "Well, it's capable of releasing large amounts of energy." No, I didn't say that.

Q: I had four years as a GI myself in the Korean War. Here, obviously, are a bunch of bright enlisted men brought together. What kind of atmosphere was there? What were you all doing?

KRATZER: There was lots of excitement and lots of enthusiasm but it wasn't at the military level. We didn't consciously reject anything military. It just wasn't part of it.

Q: I was a language specialist as a GI. The military was there but it really didn't play much of a role.

KRATZER: In my group of six or eight people - and to some extent, but not exclusively, your friends tended to be those you work with - the group leader was a Ph.D. chemist. We were certainly all under 30. Two or three other civilians and, at various times, probably two or three GIs - one of whom was a classmate from Ohio State - went through the same process that I did. We were good friends but not to the exclusion of other people. My closest friend was in a completely different group but he had also come through the same process. He was also one of the chemical engineering students at Ohio State and got assigned to a different group, but we continued to be close friends. When we had time off, we would get together and go into Santa Fe. The excitement of seeing the top people was great. Fermi was there frequently, along with many other top scientists, and we rapidly knew who was who. Looking back on it, the job I had was where I wanted to be but it was not really in the main stream of bomb design. My contact with people in that category was really just seeing them on the streets and, occasionally, in lectures, when they gave some that were open to the technical staff as a whole. I remember hearing Nils Bohr lecture.

Q: Teller?

KRATZER: Oh, yes, Teller as well. These were exciting times.

Q: Did politics intrude? I am thinking of, obviously, the Soviet Union. Was this something that was bandied about, I mean were we all pals of the Soviet Union?

KRATZER: Well, this is very interesting and a good question. I'll tell you something that has frequently come to my mind over the years. To put it in context - because at the time it had no meaning whatsoever - one of the people in my barracks, probably no further than 15 feet from me, was David Greenglass. Well, you know who he was.

Q: Oh, yes. Would you explain who he was?

KRATZER: Greenglass was one of the people tried and convicted for espionage for transferring secrets to the Soviets. He was the brother of Ethel Rosenberg, who in turn was the wife of Julius Rosenberg. They were both executed for espionage after the war. I didn't know him personally, but I knew him by sight. I probably said hello to him. I am sure that he was sort of a loner. I would say he was an odd duck. Unlike most of the people in that particular barracks, I don't think he had any college education at all. He was a machinist. In addition to the technical staff, there was obviously a need for people who ran machinery and performed tap and dye work. They didn't have any intellectual input. They were given drawings, and they made the parts that they were told to make. He was in that group, and that was a little unusual because most of that group came later and were in other barracks. The barracks held about 100 people each. At the end of the project, I imagine there were probably close to a thousand GIs.

Q: I'm talking about the typical two-story barracks with the big bay.

KRATZER: Even one-story ones. There were maybe 100 people per barracks, and there were maybe five or six or possibly more of these barracks. Most were the purely technician types that came later. I was in either the first or second barracks. We were among the earliest GI arrivals. But, yes, we had occasional security lectures. Of course, we also probably had VD [venereal disease] lectures.

Q: Oh, I'm sure of that. Ha. Ha.

KRATZER: It wasn't heavy handed but certainly more than once - I can't remember the number of times - we would have a security lecture by an officer. The officers, by and large, were not among the technical staff, although there were a few because of the training that they had had. Because of the education that they had, they were pulled out of other things and brought in. They tended to be, by reason of age and education, in more senior jobs than the GIs and enlisted personnel. However, most of the officers were there either running the post, in other words, taking care of the streets and the buildings and so on, or in intelligence and security. They were responsible for security and that sort of thing. There were security officers who gave us security lectures. Obviously, at this date, I can't begin to reproduce them but one of the things that has come to my mind over the

years is that the emphasis was on the enemy, Germany. Japan was probably mentioned, but certainly Germany must have been. I really don't think that there was any reference to the Russians, or to the Soviets.

Q: All right. Do you recall anyone asking you if you were in the Communist Party?

KRATZER: Oh, absolutely. Even in those days we had to fill out security forms or questionnaires. They were probably what we now call PSQs, that is personnel security questionnaires, but that's a term that came along later. I filled them out. I said to you earlier that with a couple of exceptions, this whole group of 30 chemical engineering students from Ohio State went to the project. The exceptions, that we rapidly surmised later, were people - not because of anything they had done, but probably because of foreign birth or foreign parents - who weren't cleared. I can remember one or two - I can almost picture them - that had foreign parents and weren't cleared and didn't get into the project. There was no reference in these security lectures, as I now reconstruct them, to the Russians. We were just worried about the Germans. There were foreigners there, British...

Q: Nils Bohr was there?

KRATZER: Of course, he was, and Fermi and so on. There were people there under the auspices of other governments; namely, the British and a few Canadians. In fact, there were two deaths from experimental work at Los Alamos, and one of them was a Canadian, which is not widely known.

Q: Your family being Jewish, was it of Russian stock or did you have any feel for - your name sounded German.

KRATZER: Well, of course, most Jewish names have German-sounding roots. No, that was the furthest thing from my mind. As a matter of fact, I didn't think I had any connections with Russian stock, and I don't think I do. My great-grandfather, rather atypically, came to this country during the Civil War as a young kid - I guess you would say a mercenary - to take the place of somebody who was drafted. They were called substitutes. I have his discharge paper - I've been doing a little genealogy - and service records, including the name of the person he substituted for. On my mother's side of the family, they were German.

Q: There wasn't any particular connection?

KRATZER: No. We had very little exchange of information on this in our family, and I'm not even sure my parents knew much about their origins. They were both born in New York, and my father's parents came from what he thought was Austria. I now know that it wasn't Austria as we know it today but the Austrian-Hungarian Empire, specifically from the area of Poland called Galicia, right north of Czechoslovakia.

Q: Everybody was Prussian and Austrian.

KRATZER: Although I really haven't traced him as an individual, I have found the town where my grandfather, whom I barely knew, came from. He died when I was five or six after we moved from New York. It's in Poland in Galicia. Again, my father thought his father came from Austria.

Q: Back to time in the barracks, was there any - following the war - were you only looking and saying, "Boy, if we only get it ready, we'll be able to do this, that and...?"

KRATZER: Absolutely.

Q: I assume Berlin was one of the main places to use it at one point in your thoughts, or not?

KRATZER: Well, I don't know. I don't think my thoughts became that specific and the bomb was not available until well after D-Day. We knew where the project stood in terms of its success. And when was D-Day, around May 25? I don't think any of us consciously said, "Well, let's see where the target's going to be." I'm sure somebody was saying this, but not among the group that I talked with. I don't think we thought in terms that were that specific. We were just intent on getting it done as soon as we could. It became pretty obvious, before we had a bomb to talk about, that the war in Europe would be over. At some point it was obvious that the only place left was Japan.

Q: Were you close enough to people who were fighting in the Pacific to see that Japan was going to be an extremely tough nut to crack?

KRATZER: Absolutely. Not from contact with GIs who had been there, but from the news reports of the fighting.

Q: Particularly Okinawa, this was going to be fighting every little cave and every little town. Did you feel you had the hammer that was going to crack open...?

KRATZER: We absolutely did. That was the basis for my statement. At the time I made it to my buddy, it was not target-specific, but I said the war would be over in a week. We were just convinced that it was the right thing to do. I know now that, at higher levels, there was a debate going on about whether to use it, how to use it, and whether to do it as a demonstration. I will tell you this - it's one of the things that's stuck in my mind - the test was on July 16, 1945. From that time until the actual drop in Japan on Hiroshima, it was not quite a month. Incidentally, the Hiroshima bomb was not the type that was tested. It was an untested design because it was a design they felt sure would work even without testing. From the time of the test at Trinity until the bomb was dropped in Japan in early August, it was not quite a month. That was a time of almost continuous celebration. The reports about people worrying and having qualms was non-existent. It didn't exist. I'm not saying there weren't serious concerns later; there were. But from that time until the drop, it was continuous celebration.

Q: What was your reaction and those around you prior to the test? I assume you were all

aware of the test and were you able to go out and look at it and all that?

KRATZER: I didn't. My boss went, and I knew of it the next day. The exact date was not disclosed to us until it was done, but the success of the test was widely known in the technical staff. I think by that time there was almost total confidence that it would work. There was another design, the Hiroshima type, for which the confidence was even higher.

Q: Was there any concern that this might start something that might not stop?

KRATZER: No. There were undoubtedly people who had begun to think of these things but they were not...

Q: I'm talking about the idea of starting a reaction that destroys the world.

KRATZER: Oh, that! The scientific side. That was talked about. I remember that was talked about a bit and discounted. Calculations were made that led to the conclusion that it was incapable of igniting the atmosphere, and it didn't. Otherwise, we wouldn't be talking here.

Q: Were you chatting about the bomb when you were sitting around the barracks?

KRATZER: Well, you put your finger on something interesting. I don't remember sitting around the barracks ever. It wasn't the center of activity. It was just the place where we slept. Our friends who were civilians had slightly better quarters and we tended to spend time there, but that wasn't the main thing. I don't remember shooting the bull with people in the barracks. The discussions were elsewhere. We weren't preoccupied with the consequences. We just knew we were doing the right thing. But it is interesting that we rarely if ever discussed the purpose of the project - the bomb - outside of the laboratory. In that sense, the security rules and lectures were followed.

Q: What happened on July 16? How did you hear?

KRATZER: Well, the test was in the early morning hours. In fact it was still dark so that there was a flash of light. I think it was visible from some portions of Los Alamos but I didn't know it. I sort of regret that I didn't know it but I don't think I would have done anything differently. That day as people came back up from the test site of Trinity, White Sands, we just heard about how well it worked. If not that day, certainly within 24 hours, there were fairly reliable calculations about its force - 20,000 kilotons. From that point on, we knew we had a winner. Now what I didn't know was that the first drop would not be that design but a different one. The Hiroshima bomb was a completely different design. We used U-235 and, because of the nature of it, there was confidence that it would work. It was never tested at Trinity, as a plutonium bomb was. The two together ended the war as far as I'm concerned.

Q: What about the aftermath of this? I remember seeing movies after the Bikini tests and about sailors going into the test area rather blithely. Obviously, we knew there was a problem but, looking back on it, were we as concerned as we should have been?

KRATZER: Well, first of all, there was certainly no secret about the hazards of radioactivity. I remember attending lectures about safety. The basic facts about the dangers of radioactivity were known in the early part of the century. I don't know if you have ever heard of the radium dial cases when they had.

Q: There was a fairly well-known play called Hazel Flagg.

KRATZER: Is that right? I wasn't aware of that.

Q: Supposedly she had it when she didn't. It was a comedy, but it was along that line.

KRATZER: The hazards were all explained to us. Plutonium is not like radium chemically, but the biological and radiation effects are not unlike that of radium, bone-seeker and so on. This was all explained to us. I worked with plutonium.

Q: Your potential job of cleaning up if it didn't work would have put you right in the middle of this problem.

KRATZER: That's right. What I should have explained and didn't is that, well before Trinity when the plutonium bomb was tested, the decision was made to go ahead because of confidence that it would work. We had pretty much completed our preparations for recovery well before the test. We would have had to, or the recovery system wouldn't have been ready.

I had begun a different job. The decision was made to build what amounted to a small production plant for bombs at Los Alamos. In other words, moving it out of a strictly laboratory setting, where the first one or two of them were built, into a small production plant. It was called DP-site, but that's not important. This little plant had a series of bays in it. One of the bays was the plutonium recovery plant where, after the bomb was fabricated and a certain amount of scrap was generated, it had to be recovered. I was given the job, without a degree or anything, of designing and running it - with a lot of supervision - but designing and running that little plant. I had a staff of about four or five, and most of them were civilians. I think I may have been the only one there without a degree. That plant was nearing completion at the time of the Trinity test. No, I'm sorry. It was not at the time of the Trinity test, but a month later at the time of the actual drop. An announcement came over the PA system, which was always squawking, that there had been a bomb dropped on Hiroshima.

There were people up there in rather large numbers, mechanics and so on, particularly where I was working because we were still finishing up the installation of this little plant. Those people didn't know why they were there. Because it was a little chemical plant, most of them were pipe fitters. That's who are used to build chemical plants. I was at that time a very thin guy. I was about 135 pounds and 6'2," so I was thin, and they called me Slim. These were pipe fitters, and a lot of them were from Oklahoma. We used to talk about Oklahoma. One of them turned to me and said, "Slim, are there any of them there

atoms in those tanks?" That's always stuck in my mind. That was my job at the time of Trinity. It was a continuing job. In other words, it had nothing to do with whether the test worked or not.

I got out of the Army in March 1946, so I was working there at the time of Trinity in 1945 and continued to work there as a GI until March of 1946 when I was discharged. I then came back as a civilian until the fall term began at Ohio State, where I had decided to go back to school.

Q: It must have been sort of anti-climatic to go back to school, wasn't it? I mean after having been doing what you were doing?

KRATZER: Well, I guess I didn't feel that way at that time. I guess I felt that it was so successful that it had sort of done its job. Because I wasn't close to the bomb design side of it, I didn't visualize, first of all, the enormous potential for improvement. Although I do remember that there were talks even while I was there, largely on the part of Teller. He was always interested in the "super," the big bomb; however, that didn't stick in my mind. I kind of thought that it was over as far as the fun was concerned, which was very naive, but that's a function of my not being close to the bomb side of it.

Q: When you left, were there severe injunctions or restrictions on what you could say or not say, sort of euphoria with the war ending?

KRATZER: Well, I think we understood. I can't say today that I remember an exit interview or anything of that nature, although it would have been logical for there to have been one. We understood that what we had been doing was secret and would remain secret. I think we understood why, but I don't remember any exit interview or even any paper signing, although maybe I'm wrong about that.

Q: Well, you worked for a while as a civilian and then you went back to Ohio State in the fall.

KRATZER: I did, back in the fall of 1946, and the winter term ended in December 1947 before the Christmas holidays. Ohio State was on the quarter system. I graduated in December of '47 with a degree in chemical engineering. The degree was bachelor of chemical engineering in those days. I suspect that they now call it a B.S. in chemical engineering. By that time, I guess it was one of the major decisions in one's life, I decided to go to work rather than going on to school, which was kind of strange, given my interest in school.

Q: For that era, you kind of went to work. Master's degrees and Ph.D.s and hanging around the university a long time was not done. That was for professors.

KRATZER: I suppose so. I now know from the people I've worked with over the years that there were a lot of other people who had a better idea than I did of what the pros and cons of going on to graduate school were. The professor that I worked under at Ohio

State as an undergraduate was really a remarkable character. He was certainly not a great scientist and probably not even a great engineer, but he was a great teacher and head of the chemical engineering department. He said, "You really ought to go on. Maybe you should go to M.I.T.," but I didn't. He didn't twist my arm. In hindsight, it is a little strange that I didn't because I continued to be pretty much at the top of the class in chemical engineering. Part of my problem was that I thought I could just read a book and pick up what I needed to know. I had met the girl that I subsequently married, so I decided to go back to work.

Q: You graduated in 1947?

KRATZER: I graduated in December 1947, and I've never been sure whether. I was in the class of 1947 or the class of 1948 because it was in December, but I think I am listed in the class of 1947. In those days, they had mid-term graduations. I got out of school at a time when engineers had any number of job offers. I pursued a couple that sounded interesting. One was in Cincinnati for Proctor & Gamble and the other was in Tulsa. I decided on going to Tulsa because of my background and the girlfriend.

Q: So you went back to Tulsa.

KRATZER: I went back to Tulsa for three years, working in the research department of Standard Oil of Indiana, not their central research department, but the one in that part of the country, on synthetic liquid fuels, which was kind of funny because we still hadn't run out of oil. The thinking then was that we might be close to oil shortages. It was a process that looked interesting, for production of liquid fuels from natural gas, which I worked on. Then, after three years, that folded. That particular job was gone, although my employment at the laboratory was not affected. It turned out not to be a viable project, although millions were spent on it. The Korean War had started and the Atomic Energy Commission was planning to build a new bomb plant in South Carolina, but I'm not sure how much that had to do with my decision to change jobs.

I missed the nuclear business, and I didn't find what I was doing that exciting and as much fun, so in that respect your comment about anti-climatic turned out to be the case. I didn't realize that at first. I contacted the fellow who I had worked for last at Los Alamos. He was not the fellow that I had started working for, because I had switched to a slightly different job. He was a chemist from Vanderbilt and, somewhat to my surprise, the answer didn't come from Los Alamos, but from Washington. It said in effect that he was in charge of a big new project in South Carolina and would be glad to bring me on board, so he did. I first went to Wilmington, Delaware, in a little satellite office. My former boss had gone to work for the Atomic Energy Commission. I knew to some extent the relationship, but I certainly didn't know the subtleties and the distinctions between the AEC, as a body, and the contractors that worked for it and actually did the job. I probably thought, although I'm not sure now what I thought, that I would be working on plant design, but that's not the way it worked. The AEC was a policy making body and, while the jobs were technical, they weren't technical in the same sense as somebody sitting over a lab bench in the actual scientific and technical work. I was sent to the AEC office in

Wilmington, Delaware, which was a satellite office of the one in South Carolina. Dupont was the contractor for the project, and the job of AEC was, in effect, to review the work at Dupont, which Dupont thought, I'm sure, totally unnecessary and superfluous. The consequences of this was that I got involved in science administration or technical administration rather than outright technical research and development at the lab level.

I should have said earlier that, while I was in Tulsa working for the oil company, I went to night law school. I'm still not sure what triggered it. I say, but it's mostly in jest, that it was because we had a septic tank that wasn't working, and I decided that I was going to have to sue the builder. The first part was true, I did have a septic tank that didn't work, but I don't think that's why I went to law school. I just liked school, so I went to night law school for a couple of years but I didn't quite finish the second year before I transferred out to the AEC and went to Wilmington.

Q: When did you go out to Wilmington?

KRATZER: That would have been in the spring of 1951. In those three years that I worked for the oil company, I married after about a year. I don't know what triggered my decision to go to law school but I really liked it. I think that's had something to do with my career even though I never finished it.

I was in Wilmington for a year, then that office was essentially transferred to the main office in South Carolina, which was directly responsible for AEC oversight of the Savannah River plant and was there for about a year. Of course, that office is still there. After about a year there, I was told that there was a job opening in Washington in the research and development branch of the production division. All of this was in a major unit of the AEC called the production division. It was pretty much the mainstream of the AEC in those days. It was the unit responsible for all these plants that everybody complains about now, creating messes and what have you. It had a research and development branch whose responsibility was, again, to oversee the work of contractors who were working on improvements to all the processes of producing nuclear materials for the weapons program. That sounded like great fun to me. By that time I guess I was becoming a little more aware of the world around me, and I think I realized that if you wanted to get somewhere in an organization like the AEC, you went to Washington. I went to Washington in grade - I'm sure you know what that means - that is, without a salary change, knowing that it would cost me more to live. But I thought that was the right thing to do, and I did. That was in 1953. I moved to Northern Virginia, where I can't find my way from Point A to Point B any longer.

Q: About this time, having been at Los Alamos and all and the Rosenberg-Greenglass case hit the headlines, did that affect you at all? Did the people start looking at you? Did you become part of just a normal background inquiry or anything like that?

KRATZER: No. We all were cleared. When I went back to work for the AEC in 1951, my clearance of the war days had lapsed. By that time, I'm sure everything was much more systematized. There was an Atomic Energy Commission. I was aware that I had to

fill out a new personnel security questionnaire, but I don't know how long getting my clearance reinstated might have taken. I don't recall having to wait very long. I believe I got my clearance within the normal several months, and I've had a clearance ever since and still do. Every several years, it's renewed. I think I know what you're saying, were people of Jewish extraction looked at differently?

Q: No, I'm really thinking about people who were there as being asked, "Did you notice this or that or anything like that?"

KRATZER: I was never asked if I knew Greenglass or if I saw anything suspicious going on in the lab or anything of that sort.

Q: I'm trying to capture the spirit of the times. Your having been involved in this process, really from the beginning, what was your initial feeling when you heard that the Rosenbergs had passed on information to the Soviet Union? Now they are portrayed as sort of martyrs for some sort of cause on some side. I never quite felt that way but I was wondering what your reaction was to it.

KRATZER: Of course, I was horrified. Whenever something like this happens, if you are Jewish and it involves Jewish people, you feel mortified.

Q: Do you think there was a Jewish feeling about this?

KRATZER: Yes, in the sense that it makes you feel very sad and badly that it was. I know now, and I guess I probably knew by then, that there was a tendency in the Jewish population, particularly in a place like New York, during the Depression years to embrace liberal and Communist causes. This was a beginning point for things like that. It doesn't excuse it.

Q: It was a very strong movement. You still see reflections of this in leftist arguments that I pick up on the Internet even today. That's sort of letting go of Marxism.

KRATZER: I'm sure that's true. First of all, I would have been horrified under any circumstances. In knowing a little bit more about it now than was apparent then, I suspect that the major damage was done, not by the Rosenbergs, but by Fuchs, whom I also knew by sight.

Q: Right, Klaus Fuchs, the German who went back to East Germany.

KRATZER: Yes. He was part of the British mission. He was not there as an American. He was seconded by the British on the basis of what they believed to be adequate security checks but, of course, weren't. Of course, even if they (Rosenbergs) didn't do the major damage, it doesn't excuse what they did. I don't know that I had any particular feelings about their execution. I'm generally not a fan of the death penalty but I didn't think that that was wrong.

Q: I'm trying to capture the time. I think this was generally the feeling. Later one is concerned about that.

KRATZER: No, I didn't feel that that was improper. Of course, there are people now doing things that I guess are injurious to the national security in terms of espionage and who don't get executed. None of that was apparent then.

Q: Since we're going to be concentrating on the foreign affairs part of the interview, I still want to obviously pick up some of these historical factors. You were really with the Atomic Energy Commission more or less from then on?

KRATZER: From 1951 until 1971, I was employed by the Atomic Energy Commission. From 1953 onward I was in this little - little is an understatement - it consisted of the branch chief and myself - research and development branch of the production division. As the civilian program got going in 1954, a short time after I got up there, there was a need for people to begin to gear up in the Atomic Energy Commission for the civilian program in various ways. In the production division, the thing that had to be done was to prepare to make available materials that previously were exclusively used for the nuclear weapons program, for civilian research and development and, ultimately, the civilian nuclear power program. My then boss, the one who brought me in and who was probably at that time an assistant director of the production division, was given the responsibility for doing this, for getting things ready for the civilian program. He pulled me into that.

By this time, without really being conscious of it but, I think to some extent, almost inevitably, I had begun to interest myself in administration. It was not administration in terms of what to do with people, that's not my forte [strongpoint]. I guess maybe a better word is policy, policy related to nuclear energy. While I was at Savannah River my then immediate boss, not the one who brought me in, but the one in charge of the Savannah River program at the technical level - a very interesting guy, John Gray who died a year ago - got pretty much involved in the issue of what is the role of the contractor, what is the role of the Atomic Energy Commission in relation to that of the contractor, and who does what and so on. This got me interested in policy issues. I did most of the work for him on things of that nature. First of all, trying to educate ourselves and through that, the Commission, because there was constant tension between those who thought the contractor didn't need any oversight and the Atomic Energy Commission, who thought they needed a lot of oversight. The question was where to draw the line. We did a lot of policy level work on this. This got me more and more interested in issues like that.

When the civilian thing came along in Washington, there was need to come up with the terms and conditions on which the nuclear materials that the production division made would be made available to civilian users. My boss at Washington, Frank Pittman, was given that responsibility and brought me into it. Then shortly after, he became the deputy director of a brand new division called the division of civilian application, which was responsible for everything related to civil uses of atomic energy. Let me explain what I mean by that. It had both the responsibility for encouraging civilian uses and the responsibility for regulating them which, of course, is now considered to be a no-no. You

don't mix these two things. The director of it was a lawyer named Harold Price, who became the regulatory guru, and my boss, Frank Pittman, the deputy director. He interacted on both sides, but he took responsibility primarily for the promotional side. He brought me into that division as his assistant and, within a short time, we saw the need to create an organizational unit to make these nuclear materials and services available. I became the first head of the branch called the materials and services branch, which was responsible for getting out the materials. We're talking about the mid-1950s now. That was probably 1955.

Q: Eisenhower was making statements about the peaceful use of atomic energy.

KRATZER: That was December of 1953.

Q: At that period of time, what type of things were we looking at for using nuclear materials?

KRATZER: From the very beginning, power was the main thrust. That's an understatement. Everybody understood that it had other, we thought, very beneficial uses: medicine, research, and agriculture, for example. We knew that the big-ticket item was nuclear power but we were concerned with both. We wanted to promote both. It was very promotional. From the time of the Eisenhower speech onward, it was considered to be a very good thing for the country. I never thought it was wrong, but there are people that thought that it was over promoted.

Q: I remember one of the proposals was to use it essentially as an earth mover, such as for digging canals.

KRATZER: Yes. That came a little bit later. That was the so-called Plowshare program, in which you use nuclear weapons to dig big holes or canals. In fact, they tried to use it to stimulate gas production. As an old Oklahoman, I knew that one of the things you can do to stimulate production when you drill a well into a productive formation but the stuff doesn't come out, is to set off a little explosion of nitroglycerine to shatter the rock so that oil can get out more easily. They thought, if you really want to get it out, do it with a nuclear explosion. It was actually tried twice in Colorado. Of course, there are consequences to it. You get more gas but it's got some radiation in it, so that application didn't last very long. In general, the use of nuclear explosives for civilian purposes turned out to be highly controversial and a non-starter. For a lot of reasons - including, non-proliferation and concern about fall-out - it never really materialized, although a number of experiments were performed and considerable money was spent. Many people today don't realize how close we came to this being a viable use.

Power was always the main thrust. We thought in fact, Louis Strauss is alleged to have said - I suppose it is correct that he said it - that nuclear power would be so cheap that we wouldn't have to meter it any longer. It was like a pendulum: there were periods of intense optimism that we were going to plaster the world with nuclear power but, then, there were other periods of great pessimism when things went slowly and we thought we

weren't getting anywhere.

Q: What about your leadership? Did you get any feel for Strauss' outlook?

KRATZER: I did. I moved up quickly at the AEC. I think I was probably a GS-13 when I came. I don't know if these terms mean anything to you.

Q: This was Civil Service?

KRATZER: Yes, I was a GS-13. I became a GS-15 fairly quickly, certainly when I had this branch chief job. I continued to do work in that capacity that went beyond the branch chief level, as assistant to the deputy director and, to some extent, to the director as well, on the policy aspects, which I loved. I began at that stage to go to Commission meetings, and I got involved with things - looking back on it - I probably shouldn't have been involved in at my age, in terms of policy. Things like what are you going to charge for nuclear fuel; not what is the right number. But what is the philosophy? Do you make it cheap so that everybody can get it, or do you make it expensive so that nobody can get it? Do you introduce a difference between foreign price and domestic price and things of this nature? I went to Commission meetings. I thought that Strauss was maligned by his detractors. He was given a very bum rap. He was an arrogant, egotistical guy, and that hurt him. In terms of his policies and the like, however, I think he was given a bum rap. I don't know if you remember the details.

Q: I really don't. I just remember that he was controversial.

KRATZER: He finished out his term. What happened was that a real grudge battle developed between him and the Joint Committee on Atomic Energy. When the Atomic Energy Commission was created, they did something that was historically unusual. They created a joint committee of Congress, the Senate and the House, with very strong oversight powers over what the Commission did. This caused a tremendous amount of tension, particularly under Strauss. The Joint Committee on Atomic Energy had enormous influence and tried to micromanage the AEC, as the Commission saw it. As an AECer I shared that view. Strauss was the whipping boy because he was the one who said, "This is my job and not your job," and there were two or three members of the joint committee, Senator Anderson, in particular, who were out to get him. He completed his term but was then appointed by Eisenhower as Secretary of Commerce, which I don't really think was a step up except that it was a cabinet level job, a kind of a consolation prize. My recollection is that there was a dramatic Senate vote which he lost by a vote or two, and he wasn't confirmed. I'm pretty sure he was not confirmed. Senator Anderson just pulled in all of his IOUs to defeat him. The funny part about it is that they didn't disagree greatly on substance. They both wanted to promote nuclear energy, they both had very strong feelings about national security, and the differences were really personality, arrogance, and egotism as well as a question of who's in charge here. I thought he was maligned.

The Oppenheimer case was another thing that happened in those days with which I had

no direct connection whatsoever other than to see the people. I used see him quite frequently walking the halls. I'm sure you have some familiarity with it. This was kind of further proof that Strauss and the Joint Committee weren't this far apart on substance. Strauss and others decided that Oppenheimer was a security risk, so they pulled his clearance. They gave him the opportunity to resign, according to all accounts, and he refused. He demanded a hearing and, at the completion of those hearings, the board that heard it decided, with the approval of the Commission, to pull his clearance. Again, I had no direct connection, but by that time I had gone far enough up the ladder to interact with several of the people who had direct responsibility for it. I knew the lawyers who were working on it and one of the commissioners, whom I knew well. I'm really not sure how I felt about that. The scientific community, in general, was very much opposed - with one exception - to pulling Oppenheimer's clearance, although they didn't like him. They felt it was unjust. I remember reading the transcript, which was published as a government publication. It was fascinating reading, but it wasn't something that I felt strongly about. I guess I was opposed to it being done, but my concern didn't go beyond that.

Q: After Strauss left, who took over?

KRATZER: I think that the next chairman was - his name is on the tip of my tongue... I don't recall that he lasted very long. Gordon Dean, but perhaps he preceded Strauss.

Q: Don't worry. You can fill these things in later.

KRATZER: The next chairman that I knew was John McCone. He was appointed by Eisenhower toward the end of the Eisenhower term. I knew him - again, we weren't friends - and I was senior enough by then to have quite a bit of contact with him. A change came about that I didn't mention. I went to the Division of Civilian Application and, if I got there in 1955, the change probably occurred in 1957. A decision was made that there had to be a separation between regulation and promotion. I was given the choice of whether I wanted to go to the regulatory side or the promotional side. I didn't want to go to the regulatory side. I could have stayed with the promotional side, but it became kind of a shell. Just about that time the person who had been my boss in the research and development branch moved to the newly formed division of international affairs. They were looking for people, and we had a good relationship so he brought me in as a branch chief doing basically the same work, materials and services, only this time focused on making materials and services available to other countries, as part of the international cooperation program.

Q: On the promotion side, were there concerns initially or restrictions on making atomic energy techniques and equipment available abroad and then how did this play out?

KRATZER: Yes. There was a major change. It was against the law from the time the Atomic Energy Commission was formed in 1946 until the Eisenhower speech in 1953. That speech didn't change the law but it triggered the change in the law. The law was completely re-written in 1954 to allow and encourage international cooperation as well as a domestic civilian program, but with both under tight security controls. Nuclear

technology wasn't to be an open book. The idea was that when information was made available, it would still be, in many cases classified, although there was a new, very large effort started to de-classify as much as possible. On the material side it was under tight control. In fact, the U.S. government continued to own nuclear fuel as they did from the beginning. The change to private ownership didn't come about for 10 more years. The ownership is sort of a red herring because that's just a piece of paper. Nuclear materials were and are under tight government control. If you have nuclear material, you have to report where it is and account for it to the government, and the government comes in and inspects it if it's domestic. If it's sent overseas that becomes much more complicated. That's really what most of my career has been about.

I moved over to the division of international affairs and became head of the materials and services branch, as I recall it. Then fairly quickly I became an assistant director for technical matters within the division of international affairs, and then I became deputy director, then director and, finally, assistant general manager, but not overnight.

Q: In the first place, when you are talking about international affairs, was Great Britain always an exception because they had been in from the beginning?

KRATZER: They were a partial exception. There's a story, which I'm almost sure is true, although I don't have chapter and verse to prove it. After the separation, which occurred at the end of World War II and the creation of the Atomic Energy Commission by law in 1946, there were reports written by British scientists working in the United States during the war, primarily at Los Alamos, that they could no longer have access to. The restrictions imposed by the Atomic Energy law of 1946 were very, very tight. They weren't just on weapons themselves where the door really was completely closed but even on things that everyone understood, even in those early days, were pretty much benign: civilian uses, radioisotopes, and so on. Everything was classified. In fact, the expression was that atomic energy information is "born classified." It stayed that way until somebody de-classified it as a result of a tedious process.

We were talking about Britain and Canada being exceptions, and this preceded the change in the law of 1954. There was a little exception carved out on grounds that were highly stylized. It was kind of silly in a way. I remember these papers that were written by a fellow working for me in the Division of International Affairs. It was just a formula. You just changed a few blanks. It was called the Technical Cooperation something or other. It grew out of the fact that we worked together during the war, particularly in the area of procurement of uranium. We jointly bought up essentially all the uranium that we could lay our hands on in the early days of the nuclear program. It was not only to make sure that we had enough for our own purposes, but to make sure nobody else would have it. The arrangement grew out of that, and there was limited cooperation with the British and the Canadians on minor technical things.

There was also a sort of special cooperation program with Canada that actually preceded or was different from any of these and really did get into areas that were considered of national security significance. When Savannah River was built, the decision was made,

for good reasons, to use heavy water reactors there. The Canadians had worked on heavy water reactors from the beginning, even during the war. It was their assigned responsibility to cover that particular approach to the production of plutonium. They were ahead of us in many ways in the use of heavy water. Even at Savannah River, it was a one-way cooperation. They were giving us help, and we weren't giving them any to speak of. They were giving us help on heavy water reactors, so there was cooperation in that respect. But the door was pretty much closed even to the British and Canadians on anything seriously concerned with nuclear power. Radioisotopes for medicine began to be seen fairly early as completely benign and not a problem, but nuclear power has a lot of interfaces with the production of materials for nuclear weapons. That was a door that had to be opened if you were going to have a meaningful cooperation with other countries.

The first thing of consequence that happened after the 1954 Act was passed in the international field was the Geneva Conferences. These were special. The one of 1955, in particular, was very special. It was a direct outgrowth of the Eisenhower speech and his proposal to create a new international organization on atomic energy. There was not yet an international atomic energy agency, so the conference was held under United Nations auspices. A really massive conference - I didn't go to it because I had not yet switched over to the international side - was held in Geneva in 1955. I believe it was called the International Conference on Peaceful Uses of Atomic Energy, and everyone was there, even the Russians or Soviets as they were called then. The Third World countries who had any basis for being there, India in particular, were there. The scientist who was elected to be head of the conference was an Indian, Hobi Baba. It was highly promotional. Every country that had something to offer attended. We were obviously in the lead, but the British and the French, in particular, were very aggressive. The research reactors were the big thing, and we actually sent to Geneva a little operating research reactor and set it up and operated it as an exhibit. This happened before I joined the International Division, but I was very much aware of it since; by that time, I had begun to get into the peaceful uses area. In preparation for the conference, there was a massive program of de-classification so that you could talk about things that previously could not have been talked about. It then became a competitive undertaking about who was going to de-classify the most and the fastest. The French - who in our view were inclined to be excessively aggressive in making their progress known - declassified information that we had doubts about. That was 1955.

The second conference was held in 1958, a third one in 1964, and the last one in 1971. They sort of ran downhill. The key ones were 1955 and 1958. From then on, it was largely an afterthought. The two conferences in 1955 and 1958 were big and promotional, and they were the triggers for de-classifying lots of information. By 1958, essentially all peaceful uses, with one or two exceptions, had become de-classified. The big exception was enrichment, producing enriched uranium from natural uranium, and that's still classified. That's an area I've had a lot of interaction with.

Q: What's the concern there?

KRATZER: Well, the concern has been really a mixture of factors. As time has passed, the reasons for this are obvious. Our concerns have migrated from concerns that the Russians would get our enrichment technology, which we considered superior, to concerns that the Third World countries would get it or, for that matter, any country that later is not a nuclear weapons state, especially a Third World country. That concern extended even to the possibility that the Russians might get it indirectly. We didn't even want countries like Britain, or especially France, to have it because of concern that they might be a source of leakage to the Soviets.

There was a secondary reason, and this is what I began to say. It was always there but probably rarely if ever stated. Enrichment had begun to appear to be both good business - we were selling enriched uranium abroad - but also became very important in national security terms because we wanted countries to use enriched uranium, of which we were the sole source of supply, for their reactors as a national security measure. Because we were the sole source of supply, we could impose terms and conditions on its use and assure non-diversion to military uses. We couldn't do this if they chose competing fuel nuclear enrichment, which was natural uranium, which was available from many countries. We acknowledged this openly. That was always open. The fact that nuclear enrichment was also good business was the part that people would be inclined not to say. Those were the reasons why, in those days, we had never de-classified the technology for producing enriched uranium. It is still classified but now the target is different. The French enrich uranium commercially. The British, Dutch, and Germans have a joint enterprise that enriches it commercially. The Japanese are working on it. But we still want to keep enrichment technology out of the hands of the potential proliferators. Maybe the targets will change at some point in time. At the moment the concern is about Third World countries that are potential proliferators.

Q: During this period up to 1970 or so, were we pretty secure in feeling that nuclear power plants were a pretty safe technology? Was this a concern to you?

KRATZER: You mean safe in hazard terms or national security terms?

Q: Hazard terms.

KRATZER: I think so. It was always a concern. We used to feel that we were the pioneers of self-regulation; that is, without anyone putting the heat on us, the public, or what have you. The Atomic Energy Commission and the people who worked in nuclear energy, I think, really felt we were doing the right thing in terms of safety and a good job. Nuclear energy is potentially very hazardous. Everyone knew that and sometime, probably in the mid-to-latter 1950s, a very significant report with a lot of impact was written by Brookhaven National Laboratory that estimated the hazard in numerical terms. While the risk of a reactor accident is very, very small, the consequences can be very, very large. We're talking in terms of hundreds of millions of dollars of potential damage that could result from one reactor accident, if it took place in the wrong place and on a very large scale. People always understood that that was true but it was the first time that anybody had put numbers for it. That put enormous incentives on developing nuclear

power safely, and nobody disagreed with that approach. The Commission always thought that it was running a strong safety program. Without outside pressures, it created various mechanisms for reviewing the safety of reactors, for example, an advisory committee on reactor safeguards, designed to make sure that no reactor got built that could present undue safety hazards. I was in the Division of Civilian Application for a while that had the safety responsibility, although I am not a safety expert in any sense of the word. I did have some involvement in it. The 1954 Act had elaborate provisions, which are still in effect, for licensing private activities to ensure that safety requirements are followed. Of course, none of these regulations are perfect.

Q: You were talking about self-regulation. What seems to happen over the years is that, particularly for commercial firms, decisions begin to be made that are designed more for profit and corners begin to be cut.

KRATZER: There is a feeling, I know, that that happens. Certainly you can find examples of that. I don't think anybody knowingly, at least not at a responsible level, will deliberately cut corners, knowing that it's taking a significant risk but wanting to reap short-term profits from it, I don't think that happens.

Q: I'm just thinking of the operations. You have an electric generating nuclear plant. Over a period of time confidence builds.

KRATZER: Absolutely. At the level of individuals, it's not exciting work. I'm not a reactor operator, though I've had a little exposure to reactor operators. It's not a fun job. You sit there with a bunch of dials and buttons. Most of these folks are not highly technically trained. In fact, after Three Mile Island (TMI), which I'm sure you are familiar with, it emerged that the technical reactor advisor was off duty and everyone under him was, in effect, a technician, i.e., non-professional, non-college educated people. I don't mean to denigrate them but they didn't have the technical background in some cases to understand the science of what was happening inside a reactor.

By the time of Three Mile Island, the Nuclear Regulatory Commission had been completely separated from the former Atomic Energy Commission. The first step, which took place in the 1960s, was separation within the Atomic Energy Commission of the regulatory function from the promotional one. That separation was actually a physical one. The Regulatory people were moved to a different building with a different head and the only connection was at the level of the five appointed commissioners themselves. There was a total statutory separation later that created the Nuclear Regulatory Commission and did away with the Atomic Energy Commission.

In any event, the point I'm making is that when people sit there doing this kind of relatively uninteresting work, especially without deep technical understanding of what's happening, there is a potential for them to become somewhat careless. One of the remedial steps that this new commission, the Nuclear Regulatory Commission, decided on in the case of licensed power reactors is that there should be a technical person present on every shift. That was resisted for a while by the nuclear power industry, if my memory

is correct. It seems to me to be self-evident that that's a good thing to do. Sure, it is possible for people to get careless, and the basic concept was that the reactor design was supposed to be fool-proof, not in the sense of keeping accidents from happening but in the sense of containing the consequences if an accident did happen. In fact, that was largely successful at Three Mile Island, which is one of the constant sources of debate between the industry and the anti-nuclear organizations and, to some extent, the Nuclear Regulatory Commission. TMI was, of course, a disaster in many respects but nobody got hurt because the safety system, specifically the containment, essentially worked. The amount of radiation that was released was minor.

Q: Going back to this, you were dealing with international affairs all along.

KRATZER: I believe that I started that in 1957. By 1960, I believe I had become deputy director or perhaps the deputy director and maybe the director of the Division of international Affairs. Then a year or two later, they consolidated two jobs, one called the assistant general manager of the AEC for international activities and the other, the director of the division of international affairs. That came about because the people who had occupied those jobs were posted to the International Atomic Energy Agency in Vienna. You know how it works in international organizations. There were certain jobs that were U.S. jobs. The senior U.S. job in that organization was the deputy director general for administration. The first director general was, in fact, an American. That was widely viewed as a mistake. He was Sterling Cole, who had been the chairman of the Joint Committee on Atomic Energy, and it was a political appointment, since the Agency resulted from Eisenhower's proposal. Cole was a good director general, but the position should never be occupied by a U.S. or a Soviet or a Brit or any nuclear weapon state.

When Cole completed his term around 1961 or so, the senior job that was sort of reserved for the U.S. became deputy director general for administration. My boss in the division of international affairs at the agency took that job, and I moved up a notch. He had still another boss who was the assistant general manager for international activities. When my original boss came back and went into other work, I became both the director and the assistant general manager. That was essentially a policy assignment, although I feel that it still had a lot of technical components in it. The first director of the division was a lawyer. The second one was a political scientist. I was the first technically trained director. You do the job a little differently. Among the things that I got involved in, because it has a lot of technical content but I also saw it as the principal thrust of the job, was the non-proliferation area and the so-called safeguards, or verification to use a more general term.

Q: During this period, how long would you continue in various jobs but in this international field?

KRATZER: Well, if my recollection is correct, I started in 1957 as branch chief. I think that certainly within a year, I became an assistant director for technical programs, I forget the exact title. Probably within a year after that, I became the deputy director. I'm guessing at this to some extent but it is fairly accurate. Then within a year after that I

became the director. I guess after 1963 or so, I became the director plus assistant general manager for international activities.

Q: What I am trying to get, because we are concerned in this type of interview with international affairs, is how long did you continue, in one capacity or another, in international affairs?

KRATZER: I continued in that until the time I left the Commission in 1971 and transferred to the Department of State, which I think may be a focus of what you want to talk about.

Q: Up to 1971, what were our major concerns in the international field country-wise?

KRATZER: Well, I am sure this isn't unique in the government but every government department tends to have its own international affairs functions and organizations. The Atomic Energy Commission wasn't a cabinet department but, in those days, it was an important organization. It began as one of the "sexy" spots to be in the government, a position that to some extent was later taken over by NASA. As a result, it was definitely in the middle of things. It was given by law a statutory and a very significant role in international relations. It had its own little state department, if you want to put it in those terms. That was the division of international affairs, which included, at times, as many as six or seven overseas positions. It had two general areas of responsibility, which it carried out through its staff in Washington and overseas offices. There was also close cooperation, which I think is the focus point of what you want to talk about, with the State Department. It was a very good cooperative relationship, although I suppose that at times, there was a certain desire to be first, but overall it was a good cooperation.

I can tell you some of the reasons for that, but one area of AEC responsibility was the promotional one. From the time of Eisenhower onward with the Atoms for Peace Program, we were promoting nuclear energy. There are those who say, not so much at the time, but later, that this was overdone. It was promotional, and we promoted it because we thought it was good for the country, first to be the leader in this field of high technology, and second, to channel the nuclear activity overseas, which was taking place anyway, into peaceful rather than military uses. You couldn't stop it. That was the thrust of the Eisenhower speech: to channel nuclear activity into peaceful programs, and to develop control and verification to keep it from turning each to military uses. That was the rationale of the promotion aspect of international nuclear cooperation. The other part of it was sort of a mirror image of the domestic situation, which was what could be called a regulatory side. In other words, making sure that what we did overseas was done safely in both the hazard sense and the sense of non-proliferation. Making sure our assistance was not being turned to military uses and, beyond that, actually encouraging peaceful uses. The balance that had to be struck was, how much can you safely promote nuclear energy without doing the very thing you don't want to do, i.e., encourage or facilitate military programs? That was, and to some extent still is, a legitimate issue.

Q: Up to 1971, were there any countries that gave us concern, like France and

Germany?

KRATZER: Well, we have to distinguish sharply between France and Germany. France was a wartime ally as well as a pioneer of nuclear energy in its own right, and it became a nuclear weapon state through its own efforts in the early 1960s. Let me say as a partial answer that there was a sub-program going on after the 1954 change to the Atomic Energy Act that opened the door to peaceful nuclear cooperation. It opened the door to peaceful nuclear cooperation only; there was little or no military cooperation. When Sputnik came along in 1957, the philosophy took hold in Congress of why should we deprive our friends and allies of information that our enemies already have? While Sputnik, per se, wasn't a military thing, it convinced people that the Soviets were very advanced in a lot of things. This led to changes in the Atomic Energy Act that opened the door to military cooperation. The changes were complicated, but it was almost exclusively with the British at the level of actual weapons design. We actually had, and I am reasonably sure we still have, an active weapons cooperation. I got involved with the negotiation of the agreements with the British in the areas of nuclear submarine propulsion, nuclear weapons design, and the exchange of nuclear weapons material. They provided us with plutonium, for which we had a need, in exchange for weapons grade U-235, of which we had a surplus.

Now, the French wanted in the worst way to be the beneficiaries of this same kind of cooperation with us, and we closed the door on that. De Gaulle was in power then, and he saw that as the ultimate insult. The primary reason for it, and I was fairly involved in this, was a concern that the French atomic energy program still included communists or former communists in some senior positions. We had cooperation between our respective security staffs with the British and to a lesser degree with the French. We would examine their clearance process, not their individual decisions, but their process for clearing people, and they supposedly would examine ours although it was mostly the opposite direction. The feeling was, I can't say to what extent it was correct, that the French atomic energy program was not secure in terms of being an appropriate recipient of our classified military nuclear information. So, they were never allowed to have the same kind of cooperation as the British. As a sort of consolation prize, we did supply the material for their prototype land-based nuclear submarine, which allowed them to get maybe a couple of years head start on their own nuclear submarine program. They weren't yet producing enough of this material to do it themselves. That didn't include any information, just the material.

A lot of countries - the Dutch, the Italians, later the Canadians - all wanted, not so much our weapons because that was totally ruled out, but cooperation in nuclear submarine design, including propulsion. Rickover was tremendously powerful. His word was law in his field and sometimes out of his field. He just said, "No." I was the guy who normally had to tell our NATO partners, although the policy came from him. The nuclear submarine cooperation was somewhat a side issue. There also was, and is, cooperation with NATO as an organization that allows us to transfer classified nuclear military information on the use of nuclear weapons, what they do and protection against them but not their design. That cooperation is ongoing. That all took place after this change in the

Atomic Energy Act in 1958.

The main area of cooperation in civil atomic energy was nuclear power; the other aspect was pretty much radioisotopes for medical and other research. We can lay that aside because all that was and is essentially in the public domain. In the areas of nuclear power, we made a very sharp distinction between the Soviet bloc countries as they existed from 1954 onward, and essentially the rest of the world. There were regulations that name these countries that the Commerce Department promulgated, I'm sure on the advice of the State Department. It included all the Sino-Soviet bloc countries, the Chinese, and so on. We could not have with those countries cooperation that involved the transfer of material or the transfer of hardware, such as reactors. It could not be done. There could, however, be exchanges of information as long as it was unclassified and under fairly tight control by the Atomic Energy Commission. We, in fact, had such exchanges with the Soviet Union from 1958 onward, but particularly probably more intensively from about 1960 onward.

We exchanged visits, but no materials, no hardware, just unclassified information, including some that was not published. I think it is fair to say, and there are some interesting anecdotes I can give you on this, that it was a status symbol in Washington to have Soviet contacts and cooperation. The Commissioners, in particular, were very much taken by this, and we had exchanges of visits at that level. The exchanges were always tit for tat. They wanted to come here to places A, B, and C; in exchange, we had to be able to go there to comparable places.

One that sticks in my mind vividly is that there was a Soviet mission here by invitation at the time of Kennedy's assassination. At first, no one knew what had happened and there was at least a suspicion that it might have been a Soviet-inspired action. The Soviet visitors were not in Washington at the time of the assassination; they were at one of our laboratories. Their schedule was changed to keep them out of town until things quieted down somewhat and there was some understanding as to what had happened. They came back perhaps a week later, by which time Kennedy had been buried. They wanted very much to go to his grave, and we got special permission to allow them to do it. I guess I went with them. I am convinced they were genuinely affected by it.

I don't know if you're interest in an anecdote, but this is something that really did happen. The head of the commission in 1960 was John McCone. I don't know whether you know much about him but he'd headed a very major industrial activity in San Francisco during World War II, building ships. He was a very successful, very wealthy man. He was supposed to be a highly competent administrator of large technical enterprises but never had a government job before. He took over from Strauss. The head of the delegation to the International Atomic Energy Agencies general conferences was always the head of the Atomic Energy Commission, so John McCone took that job over after Louis Strauss retired and had completed his term.

McCone was a very prominent Catholic layman. I believe he was a major contributor to the Shrine of the Immaculate Conception in Washington. He didn't want to have anything to do with the Russians. He was strongly anti-communist. Now, one of the members of

the Atomic Energy Commission, as a member state, is the Vatican. The head of their delegation was always a man named Frank Folsom, who I believe was the head of CBS. He, too, was a prominent Catholic layman but, more importantly, the number two guy in the delegation was Father Theodore Hesburgh who was the head of Notre Dame University at the time. Hesburgh convinced McCone that he was being too sticky about this and that that was not the right way to deal with the Russians. Hesburgh got them together in Vienna. From that time onward, McCone developed a close relationship with his counterpart who was the chairman of the Soviet atomic energy program. So, there was always this U.S.-Soviet cooperation. It was fairly intensive at times because the Russians were advanced in certain areas where we could profit from their knowledge.

Q: One of the very interesting things was that both the Soviets and the United States, at a certain point, were mutually wanting to keep the nuclear club closed for very obvious reasons.

KRATZER: Absolutely.

Q: Was this something that you...

KRATZER: Absolutely. This was vital. We did have a commonality of interest. We were both strong supporters of non-proliferation. At the very beginning when the International Atomic Energy Agency was first created - I think the first conference I went to was in 1958, which was the second one - the Soviet delegation sought to dismiss safeguards. Their pitch was that safeguards were baloney, and "we're the nice guys" and "we're not going to control you." Within roughly two or three years - and I became a first-hand observer of this change - they got "religion" and decided that they had as much interest in a strong verification or safeguards program on the part of the International Atomic Energy Agency as we did. I remember this especially well because it took place in a series of meetings at IAEA headquarters in Vienna at which I was heading a U.S. delegation for the first time. It was a meeting of the IAEA Safeguards Committee to extend the IAEA safeguards system to larger nuclear reactors. We had received advanced hints from a very competent Yugoslav who was then in charge of Safeguards that the Soviets would probably be more cooperative than in the past, but no one knew how far they would go.

During the final meeting of the committee, there were a number of opponents of stronger safeguards who were still counting on Soviet support, and I decided to ask for a vote, which was very much out of keeping with the practice then and now of attempting to decide everything by consensus. Our position was adopted - either with Soviet support or possibly abstention - I can no longer remember which. I believe the year was 1961.

From that time on, there were a lot of ups and downs but I think, in hindsight, that these were side issues compared to our common interest in nonproliferation. For example, we constantly, after the Hungarian uprising in October of 1956, challenged the Hungarian delegation's credentials. It was one of the games that's always played in such international conferences. This is not my area of expertise, but when you're on the

delegation you get involved. A few years later, we would be challenging somebody else's credentials. For many years, we successfully voted down the Chinese. You'd lose your job if you didn't support these positions. We had friction with the Soviets on all of these issues.

On the core issue of non-proliferation and effective safeguards, however, they became our collaborators. We collaborated, also, in the essentially bilateral area of cooperation of advanced reactor technology, in areas where they were doing very interesting work. At the engineering level, they were always wanting. They just don't do things very well. They didn't then; they don't now, but their concepts are interesting in many cases. There was close cooperation at the level of nuclear science and reactor concepts.

Q: What about Communist China? Again, we're tracking this period up to 1971.

KRATZER: Well, that was totally out of bounds.

Q: What about the tests in China?

KRATZER: It was in the early 1960s, I think, when they had their first tests. I should explain that the intelligence function in the AEC, in other words keeping track of what other countries were doing, was not part of my responsibility. I got reports but not all that many. There were people who were following China and knew it was going to happen, so it wasn't a big surprise. We didn't really challenge it because there wasn't anything we could do about it.

The same was true of France. We weren't happy about the French explosion, which was a year or two earlier. We knew a lot more about that, and we knew they were working on these things but there was no real basis for us to take them on. An interesting issue, that we could control, was whether we should continue to cooperate with the French on peaceful things after their test. We did. We didn't try to stop that in any way. In the case of China, there wasn't any cooperation, so there was nothing we to stop.

Q: Was the Pentagon worried?

KRATZER: I am sure the answer was yes but it wasn't within my immediate area.

Q: What about Israel?

KRATZER: I was thinking of Israel as I was talking about these other cases. That issue never goes away. I have had some involvement with it over the years. There is a very, very strongly held belief on the part of people outside the government and probably some inside the government that we deliberately turned our eyes away from the Israeli development. I don't really think this is true. I think we were concerned about it, unhappy about it. Let me give you some specifics. McCone was the chairman when the Israeli program surfaced and, to the best of my knowledge, he did not have prior knowledge of it, although there are those who dispute that. He was close to the end of his term, and it was

already announced that he would retire. You have heard all the stories about Dimona, the Israeli nuclear plant. Originally, the Israelis said it was a garment factory. It quickly became obvious that it was a nuclear reactor, which they acknowledged fairly quickly. McCone was invited to be on "Meet the Press" or some similar program. In those days, there weren't as many, and they were radio, or perhaps television. I can't remember for sure. In any event, he was invited to be on it one Sunday. We didn't know what he was going to say because he was his own boss. I got a call from colleagues at the State Department, saying, "Tell McCone to go easy, to not be too alarmist," and so on. So, I called McCone. He had a temper, and I don't think he was mad at me, but he said, "Listen, I am not closing out my government career by shutting my mouth," because at the time he thought he was quitting. As a matter of fact, he was subsequently appointed director of the CIA, but he didn't know that then, or if he did, he wasn't saying so. He went on the program, and he was quite critical of Israel and said Dimona should be placed under international safeguards, which was our position.

Later on, as is now widely known, although they were supposedly highly confidential or secret at the time, there were inspection visits to Dimona, which were conducted by people from an AEC lab. The specific guy with responsibility for it was the then-head of the AEC division of intelligence, a fellow named Reichardt. I was aware of the visits, and I saw the reports and I talked to some of the people who made the visits. I can't remember whether I talked to them before they went or after they came back. A very close friend of mine from one of the labs headed several of those missions. To make a long story short, I did not see evidence that we were complacently winking our eye. I'm not sure what we could have done. The example I use to test critics out on this is the fact that the Indians did the same thing without reaction by us. No one goes around saying that we didn't care about the Indians moving in this direction. We did care about the Indians and I believe we did care about Israel.

Q: There wasn't much you could do.

KRATZER: Maybe we would, in some extreme circumstances, go to war to prevent proliferation by a hostile country. The policy has always been non-proliferation; it's not good for additional countries to get nuclear weapons. But the intensity of our opposition has really not been that consistent over the years; it didn't start that strongly. Initially, the feeling tended to be that we don't want it to be accomplished with our material, but we were less concerned if a country did it on its own. I've said this publicly, sometimes with some annoyance on the part of those listening. We didn't want it to be on our watch. We didn't want to help anybody but, if they managed to get it on their own, well, we tended to accept it. Quite a few things support that point of view. Now, people on the Hill, when I've said that to some of them in the past, weren't very happy with hearing it. But if you look at the legislation, the Atomic Energy Act, the initial point of view was that they - other countries - would not be allowed to do it with our stuff. While we didn't encourage them to do it with other resources, the policy to some extent was more permissive than we like to think it was then and than we think it is now. When the chips are down, the options are pretty limited. Look at Pakistan.

Q: Sure. The only other way of doing it is to look at what happened when Iraq started developing it and you bomb the facilities. That's not really an option that's open to us too often.

KRATZER: The whole business of lowering the boom on Iraq, which I strongly support, was not initially about concern of weapons of mass destruction. We didn't go in there because of concern about weapons of mass destruction. We went in there because they invaded their neighbor, and we should have gone. The evidence of nuclear weapons development that we had in bits and pieces at the time got much more detailed later. They were heavily engaged in weapons of mass destruction development. That's almost, you might say, fortunate. It's not fortunate that they were doing it, but the knowledge that they were doing it was a fortunate byproduct of the War. It wasn't the cause of the Gulf War; it was a byproduct.

Q: In 1971 you came to the State Department. How did that come about?

KRATZER: I had been the assistant general manager for international activities at the AEC, and I figured that that was pretty much the end of the line. In terms of personal advancement, in other words, the general manager, even if I had otherwise been qualified, was traditionally chosen from the main line of the Commission, which was the nuclear materials production and weapons program. I was interested in overseas assignments, and the main line of the Commission was domestic activities. I think the trigger was really Herman Pollack, who was then the head of the science bureau in the Department of State and who had become a friend and collaborator, my opposite number in the State Department. He had, on a number of occasions, said that anytime I feel like being one of his overseas people, a science counselor or a science attaché, to let him know. He made that statement one day when I felt it was about time to leave. No doubt a contributing factor was that the tenure of the then chairman, Glen Seaborg, was ending. I didn't know who the next chairman would be but I didn't particularly want to start with a new one. These things came together. Herman, in effect - within reasonable limits - gave me the choice of any post where he had an opening. One of those posts was Argentina. I had some Spanish language capability and my wife had some, and we liked the idea of a Spanish-language post. It was a new beginning and a new career, and I did it.

Q: You were in Argentina from when?

KRATZER: I was there from 1971 to 1973. Bureaucratically, it was, in the eyes of my friends and colleagues, a step backward from being an assistant general manager at the AEC, which was a statutory job but there was no pay change. More importantly, I was interested in going overseas.

Q: Your job was what?

KRATZER: I'm glad you mentioned that. Buenos Aires was one of the posts where the Atomic Energy Commission had one of its overseas offices. At that stage, the AEC had perhaps six or so offices in embassies. The officers had the title of AEC scientific representative. The offices were funded by the AEC but, like all overseas positions, the

officers reported to the ambassador in principle, but in reality we were there to do the AEC's work. In fact, the offices reported programmatically to me as AEC assistant general manager. One the conditions of my going - and it turned out that it was compatible with who was then scheduled to leave the respective posts - was that I would take both the State Department science attaché and AEC jobs. I would become a State Department Foreign Service officer and be a science counselor, but I would consolidate that position with what had previously been a separate job as the AEC scientific representative.

Q: That would make sense. Otherwise, you would be right up against each other.

KRATZER: It had been separate before, but given my AEC background, it did not make any sense with my going out there. The reality, which I guess I always knew, was that there weren't two jobs to be done. It was an interesting post but not that active, so I performed both jobs without much strain. In fact, from that point onward, I became a State Department employee, although I would say that most of my time in Argentina was spent on nuclear matters. That's not inconsistent with being a science counselor because one of the major issues coming to the fore at that time was non-proliferation. It had always been there but was growing in recognition and importance. Herman, I think quite rightly, felt that people who could do the best job in this area were those with a nuclear background. Herman filled a number of science attaché posts with people from the Atomic Energy Commission who had a nuclear background. That was almost a requirement for the job of science counselor in those days.

Q: What was our concern in Argentina in 1971 and 1972.

KRATZER: There was concern that the Argentines had a military nuclear program in the back of their mind. There was no evidence while I was there that they were actively pursuing it, though the whole nature of their program indicated they were keeping this option open. They desired to be independent in each of the steps of the nuclear fuel cycle, and they had a preference for natural uranium reactors to avoid U.S. control of fuel supply.

Q: We were concerned both about Argentina and Brazil. We essentially didn't have any great quarrel but we didn't like the thought of both of them running around with nuclear weapons.

KRATZER: Yes. That's right. They weren't adversaries but they were certainly rivals. They were rivals in terms of who was making the most progress in a number of fields, whose economy was the strongest, and who was technically the most advanced. The Argentines, although smaller, laid claim to that, particularly in the area of science and technology. The area of atomic energy was one of the competitive areas. It's funny the way minds work in that part of the world. When the Atomic Energy Commission first set up its overseas program, and I don't mean just international cooperation but actually setting up overseas offices, the decision was made initially to have a representative in Buenos Aires dealing with Latin America as a whole. The Brazilians were so upset by this that we had to set up a parallel office in Rio de Janeiro so that there was one in both

places. It didn't turn out to be a matter of great importance, but the Argentine office both for the AEC and the State Department was a regional job. It was understood that Argentina was to be the main focus of activity but, in point of fact, it was a regional job that covered the southern cone. It covered Uruguay, Paraguay (where essentially nothing nuclear goes on), Chile, and Peru, which is an interesting country, but not Brazil. Of course, those were the days of Allende in Chile, but I did get over there. The same controversy between Argentina and Brazil arose at the IAEA in Vienna. The IAEA statute provided that the most advanced country in nuclear energy in Latin America would be a permanent member of the IAEA Board of Governors, and Argentina and Brazil argued over who would fill that position. The final solution was to split it, with the two countries alternating.

Now one of the things that I think is worth saying is that, which I assume is one of the areas of interest to you, Herman really re-created, in my judgment, the science counselor and science attaché program. He put it on the track that I assume it's still on today although my contact with it is not very extensive right now. At one time there was an earlier science attaché program in the Department. The science counselors in the early days - I knew very few of them personally - tended to be people who had retired from academia, very prominent in their fields. I think there was a State Department science advisor to whom these people nominally reported. They built up relationships with their counterparts in the scientific communities in the countries where they went. I am sure they did this very well. As a completely separate organizational unit at State, there was a position known as SAE, special assistant to the Secretary for Atomic Energy. The first occupant of this position that I knew was Gerard Smith, who later went on to be head of ACDA, the Arms Control and Disarmament Administration; he was a very prominent individual. He happened to be a wealthy man, which is perhaps not relevant, but he was also a man of considerable reputation. He had been a colleague and, I guess, a friend of Louis Strauss at the Atomic Energy Commission and moved over, probably at the request of Dulles, to the position of SAE. His deputy also came from the Atomic Energy Commission, a gentleman named Philip Farley who was absolutely first rate. He replaced Smith when Smith retired. This organizational unit originally had nothing to do with the science counselor program, but the two were ultimately merged.

Q: I may have the facts a little mistaken but I think that Herman Pollack was the first individual and probably the only one who proposed it, although I don't have any direct knowledge of this.

KRATZER: Herman came out of Administration in State. He was not an FSO. I don't think he was particularly trained in political science and certainly not in any of the physical or natural sciences but he was an excellent administrator and a very thoughtful guy. He put together these programs: the program of science attaches and science counselors and the SAE activity into what became SCI, the Science Bureau. His title was Director. It was a bureau, but not a bureau headed by an assistant secretary at that time. Herman saw that the real job of the science counselor abroad was that of interacting, not so much on science in the narrow sense, but on science policy with the host country. The job included non-proliferation very prominently because of its importance in those days

and still in the nuclear field in general. The emphasis, as Herman saw it, should be on the political side of science. Herman also saw that the people who could do this the best were people knowing how science worked at the policy level of the U.S. government. A lot of these people, like myself, came from the Atomic Energy Commission where science and government policy first interacted most intensively. A number of us were people with backgrounds from various government agencies, including the Atomic Energy Commission with government science backgrounds. Herman built the science bureau and particularly the science attaché program around the concept of science policy.

I went to Argentina knowing that it wasn't the hottest spot in the world in professional terms but still an interesting place, a place that I thought, mistakenly at the time, was ready to emerge from the days of Peron and not very much progress. I also felt that it was time for a change of pace and a little less intense work. Relaxation was not the word because the hours were long but the work was certainly not of the intensity that I had been accustomed to. That was to be a four-year assignment but it ended prematurely after about two years. Herman initially asked me and then told me that there was an opening in Japan that I was to take. I transferred directly from Argentina to Japan, which, of course, was much more active.

Q: I'd like to go back to Argentina. Who was the ambassador then?

KRATZER: The ambassador was John Lodge.

Q: Was he very much interested in science?

KRATZER: He was very interested. He was a very colorful character. I think that's widely known in the State Department. I'm not talking out of school but he had come from a very interesting background. In addition to being a member of the prominent Lodge family, he was a movie actor.

Q: I saw him in...

KRATZER: *The Little Colonel.*

Q: He was also in Catherine the Great.

KRATZER: Quite probably. He spoke very commendable Spanish and had a very, very active social life. He had many friends in Argentina. I think he was the right person at the right time in Buenos Aires. He would certainly not have been the right person at many other times in Buenos Aires. He interacted extremely well with the then government of that country. He was interested in everything. He liked science - I don't know that he was knowledgeable - and he particularly liked the natural sciences. He was a conservationist of the old school. He liked the fact that Argentina was the home to a lot of rare species - whales and the like - which he kept track of. He loved to travel around the country and visit some of these places. I don't know that he ever made it to Antarctica but Argentina takes the position that it owns a good slice of Antarctica and that was a matter of interest to him. He was interested in science. He didn't delve into it deeply, but he was on top of

many things.

Q: Are science attaches, in general, there sort of like military attaches, not spying but collecting intelligence? Were you dishing out stuff or were you commercially trying to promote American things?

KRATZER: Yes. All of the above, but I think that is a central question. I have thought a fair amount about it and reported on some of these things to the Department. Every Foreign Service officer or attaché is there to get information on an open basis. I always wanted to avoid doing anything that the host country would consider to be off base. Everything we wrote was, of course, available to the station and to headquarters in Washington. In other words, it was available to the intelligence community, but it wasn't collected for them on request. No one ever asked me to break that rule but that was my own thinking about what the proper course was. We also kept the host country informed of major science policy developments in the U.S. in areas that were of interest to them, which in Argentina were fairly limited. Again, my feeling was and still is that the main job of the science attaché overseas is to interact in science and technology at the policy level. Things like what is their policy on protection of scientific information, what is their policy on environmental issues? Doing what every Foreign Service officer does in his area; namely, trying to make the climate for U.S. policy as positive as possible and trying to bring the host government along as far as possible to compatible policy positions.

Now the area of commercial things was very important in my own mind because it's something we were very attuned to in the AEC. It happened, maybe it was in my mind even when I went, that Argentina was at a critical stage in its nuclear program from the commercial point of view. At that point in time, Argentina was in the process of getting international tenders for their second nuclear power plant. They had ordered their first plant and were well along in building it when I got there. They bought their first plant from Germany, and the AEC was very much involved in that in that in a number of ways. The AEC had to supply heavy water to them because the Germans had no heavy water. It was always a source of annoyance to a number of us that the Germans sold them a heavy water reactor, knowing that Argentina had no heavy water to put in it. The Germans assumed, without ever coordinating or talking with us, that we would supply it. The position that I took as AEC Assistant General Manager for International Activities was that, despite the unfair aspects of the German sale, it was in the U.S. interest to provide the heavy water; the AEC commissioners agreed and we did so. I still believe this was the correct decision.

Q: Canada would be the supplier?

KRATZER: No. At that time, the Canadians, too, were depending on us for heavy water. Later the Canadians produced their own, and that's relevant to what happened in Argentina. We were, for many years, the only source of supply of heavy water. We were widely suspected of wanting to monopolize the enriched uranium business, which was not necessarily incorrect, but the reality was that without even really trying to do so, we were the only source of supply of heavy water. The Canadians and Germans and others

who were out selling heavy water reactors were relying on us to supply the heavy water. There was a lot of opposition to our doing so for that German reactor. We finally decided, and this was something I was directly involved in while at AEC, that it was better for us to do it. If we withheld it, it in effect destroyed this very expensive project for the Argentines. That would have been the end of the road for us in Argentina and would also have tended to discredit us and the Atoms for Peace program.

When I got to Argentina, the competition on the second project was just beginning. The Germans, the Canadians, and the U.S. were the competitors. At that time, the Germans were pretty much out of it because their reactor was economically unattractive. The Canadians were in it and, by that time, had begun to produce heavy water so they could supply it. It was very intensive competition, and we did our best to promote the potential U.S. supplier, Westinghouse. The Argentines, true to form, decided to buy another heavy water reactor, which was one of the sources of concern. In our view, it was not the right reactor for the country in economic terms, but the fact is, they wanted a reactor that didn't depend on U.S. enriched uranium. We used to kid them that they were becoming highly dependent on heavy water from one source of supply, namely, Canada but that didn't bother them as much as becoming dependent on us for enriched uranium. They bought the Canadian reactor, which has performed satisfactorily.

Q: What was the Argentine government at that point?

KRATZER: At the time, the Argentine government was actually the last of the series of military governments that had displaced Peron in the mid-1950s. I've forgotten when he left the first time. Now, toward the end of our two-year stay, that government, which was headed by a general named Lanusse, under tremendous public pressure, decided to hold an election. Shortly before we left, the election was held and a non-entity who was in fact a stand-in for Peron was elected and began to serve. I think the day that we were leaving, or maybe a day or two before, Peron and his then wife returned to Argentina. I have forgotten the exact sequence of events after we left. I guess Peron became the president, and she became the vice president. After a period of time, he died and then she became the president. Then she was displaced by still another military government. During my stay, 1971-1973, they were very severe times for the Argentines and rather unsafe times for foreign diplomats and businesspeople. There were kidnappings, some just for ransom, but others of a political nature. One of the U.S. military attaches' homes was bombed. It was not a good situation, but that's not why we left. We were never threatened or felt any security risk personally but it was not secure.

Q: Was there much in the way of scientific exchange there? I would have thought things would have been relatively slow.

KRATZER: It was not an intensive post in that sense, other than nuclear science, which was quite active because of the competition that I mentioned. Yes, there was scientific exchange, mostly at the academic level. There were a number of U.S. firms that were active in Argentina, General Electric, and so on. I made a point of keeping in touch with them. There was also a considerable amount of policy level activity in the form of efforts

on the part of the Argentines to influence the nature of the technology transfer arrangements between them and the U.S. or any donor country. Their position was that they were a Third World country when it came to something they wanted badly. Of course, they were an advanced European-oriented country when they wanted to play it differently. Their basic position was that technology should be more or less freely available to them without regard to royalties or patent rights because they needed it and because they were behind. It never reached the level of high policy but it was a constant issue, and there was a Latin American meeting in Brazil that I attended which, by the standards of those days in that part of the world, was of some importance on technology transfer and the like. Generally, Argentina was not an area of great activity.

I'll give you an example of the kind of thing that comes up from time to time that you can't predict but certainly creates a considerable amount of interesting work for a science counselor or science attaché. While I was there, we launched Sky Lab. That was the first of the large orbiting laboratories. It wasn't the shuttle but it was the third stage of a large booster rocket. In any event it was a rather long-term U.S. orbiting laboratory, as the name implies, and there had to be a tracking and communications station in the South Atlantic. The logical place for this was Argentina. The tracking station took the form of a ship that belonged to NASA, a fair sized ship with all sorts of antennas on it, which made it look like an intelligence or spy ship. It wasn't, but it looked like one. Of course, for the ship to be home-ported in an Argentine port required Argentine government approval. That became a cooperative project of the naval attaché and myself, primarily me, and it took a little bit of doing to get the Argentines to let it be stationed there, but they finally agreed to it.

Another project that came up was their desire to, in effect, lease to us an island with a landing strip on the Argentine portion of the Antarctic Peninsula. They invited a number of us to go down there. What they wanted from the U.S., in exchange for U.S. right of use of the strip, was for the U.S. to improve the strip by laying a surface on it. It was not to be concrete but a type of mesh surface that was used during World II and maybe beyond. I don't know whether that was ever done because the project wasn't completed by the time I left. I got involved in that because one of the rationales for it was scientific interest in Antarctica and the like. It could have been useful to the National Science Foundation as a staging point for their activities in the Antarctic. In fact, the Antarctic, in general, was an area of interaction, scientifically, with the Argentines because of the Antarctic Treaty and the extensive U.S. research program there. There was work to be done but I couldn't argue that it was the center point of our overseas science activities. I don't know whether we have a science counselor there at the present time. My instincts are that in an era of budgetary tightness, you could dispense with it. Having occupied the job, however, I couldn't say that we didn't get value received for whatever maintaining the post might cost.

Q: Then you moved in 1973 to a place that must have been much more active.

KRATZER: Right.

Q: This is Japan and you were in Japan from when to when?

KRATZER: I was in Japan from 1973 to 1975. That was to be a somewhat longer assignment but in 1975 I was asked to return to the Department to be deputy to Dixie Lee Ray, who after having been chairman of the Atomic Energy Commission became the first assistant secretary of the new bureau of Oceans and Environmental Science when the AEC was dissolved. I don't know whether I was required to take the job of deputy assistant secretary, but I thought it was a sensible decision to make.

Q: In 1973 to 1975 who was the ambassador to Japan?

KRATZER: The ambassador, when I arrived, was Bob Ingersoll, who later became deputy secretary. He was from the private sector, an industrialist, and a very fine gentleman. He left about mid-way through my two years there and was replaced by Jim Hodgson but pronounced "Hodson." He was a nice gentleman but I think somewhat less active as ambassador than Ingersoll had been. He had been Secretary of Labor.

Q: Obviously, Japan in those days was full of development in electronics? What were your concerns there?

KRATZER: Let me give you an anecdote, one which helps answer that question and which helps illustrate change that Herman brought about in the whole program of embassy science counselors. I was preceded by a gentleman named Bob Hyatt who had been president of the University of Hawaii. I forgot what his field of science was but he was a recognized scientist. Shortly before I got out there, there was about a two-month hiatus. Hyatt had already left to become president of the University of Alaska. That's kind of a switch in climates! I knew Bob quite well, and he was a fine person but I don't think he saw the job in the same way that Herman did. When I got there, I discovered that an agreement was being negotiated which was of some importance in the U.S. view. It was an agreement with the Japanese government on energy research and development. The responsible officer in the embassy was the commercial counselor or commercial attaché, and I was, to put it mildly, upset by this. I thought that this was my responsibility, and I began making phone calls back to SCI and Herman and others. To make a long story short, the responsibility was changed and assigned to me. We did negotiate a useful cooperative program in energy research and development. I should have added that I did not carry with me out there the responsibility of AEC scientific representative, because there was already an AEC scientific representative there that I had worked closely with while I was at the Atomic Energy Commission and in fact had assigned there. While he was, to some extent, autonomous, there was, in effect, a little science office which, as science counselor, I headed. It included this gentleman, the AEC scientific representative, and two National Science Foundation people. Before I came there was also a representative of National Institutes of Health. That position was discontinued but later, largely at the initiative of the Office of Naval Research [ONR], but with my support, we set up an ONR office that included two or three scientists. It did not focus on military matters but on general science matters of interest to the office of naval research that perhaps had a naval aspect but were basically scientific. The science counselor's office

was a multiperson office and I, for the first time, had a junior FSO assistant. It all adds up to the proposition that it was a pretty active place. While I was there, one example of what one does was this negotiation of an agreement on energy research and development.

Another area toward the end of my stay that became very important and for which I took responsibility in the embassy was the Atomic Bomb Casualty Commission. This organization existed from 1945 or 1946 onward. This was a joint U.S.-Japan scientific program to study the survivors of Hiroshima and Nagasaki, following them medically to see what was happening, to see what the incidence of various diseases was, and so on. It was very important scientifically but also very sensitive politically. At the beginning, we paid 100 percent of this. As time went on and Japan became more affluent, we became a little less willing to pay the full cost. We began to feel that they ought to fund a good part of it, maybe all of it. To make a long story short, while I was there, the Atomic Energy Commission re-negotiated the terms of reference of that body. Its name was changed to the Radiation Effects Research Foundation and the funding formula was renegotiated. I was the local embassy representative and an active participant in the negotiations by which we were able to reduce very substantially our cost of running the thing. It was an expensive operation in those days. I believe that the successful outcome of this negotiation was a major factor in my being requested by Dr. Ray to return to Washington to serve as her deputy.

The environment became an active issue while we were in Japan. The whole proposition of Japanese progress, which we saw very readily, was well along when I got there but it really built up steam. It didn't take a rocket scientist to see that they were outstripping us, particularly in consumer electronics, and I reported on this. I don't know who read my reports, but I reported extensively on this.

There was a very interesting event that took place while I was there. Boeing had been involved in the development of a supersonic transport. That was in effect terminated by U.S. government action because of environmental concerns about it. It wouldn't have much effect now, but that termination put a considerable dent in Boeing's prospects. As a result, Boeing was looking for partners to develop the next plane, which they then called the 7x7. I'm not sure, but it may have become the 737. In any event, Boeing was in the process of developing a partnership with the Japanese aircraft industry, which was not a very active or advanced industry by world standards because Boeing needed help in the funding. It struck the Japanese as very curious that a private firm, Boeing, would be able to risk U.S. leadership in civil aviation, without any real consideration and approval by the U.S. government.

I was generally concerned that the Japanese were getting a lot of U.S. technology for very little; that they were getting U.S. technology largely through effective negotiation and playing off one potential supplier against the other, at very little cost. They were scouring the world, and that meant primarily us, for technology. They weren't self-sufficient at that time in the development of technology. They were exceedingly good then and, of course, now at adaptation and improvement but they generally derived their basic technology from other places, primarily the U.S. This was true in space when they started their space program with U.S. help. It was true in many areas.

I thought then and still do that you can't keep other countries out of these advanced things, and it makes sense to cooperate with them, but on a carefully thought-out basis of mutual benefit. I do have reservations about how well the government can run things like this, but I think there has to be a degree of governmental involvement in terms of which technology is made available and on what terms. That didn't exist. We were not really, in my view, getting what we were entitled to for transferring this large volume of technology. In any event, I felt that things were going on that people didn't understand at home. I guess that everybody in the field tends to have the feeling that headquarters isn't listening and I had that feeling in that position. The point I am trying to make is that there is a lot of science and technology policy regardless of what side you might take and how you report it. There was a lot of that happening between the U.S. and Japan then, and I'm sure it still is.

Q: You are saying this is pretty much one-sided as far as technology is concerned. Was it that the Japanese had management techniques which, at least in those days, was working well? That's what gave them the edge?

KRATZER: Well, I think, frankly, there was a certain amount of naivety on the part of the U.S. suppliers of technology. I don't think that they fully took into account the extent to which the Japanese could attain scientific predominance - technological, I think, is a better word - by exploiting and often improving on the technology they got. In other words, I don't think we fully understood that we were putting a competitor into business. I don't think we, as a country, or our industry, were being properly compensated for that risk.

Q: Was there much contact between you and, say, the commercial office to alert American business of what was happening?

KRATZER: I think the answer is there probably could have been and should have been more. I didn't have any problems with the commercial people other than the initial one of finding them running the energy research and development negotiation and we were good friends, but I don't think that was the way they saw their job. The answer is there was very little. I would write my messages and airgrams, and I don't recall, in general, that I felt the need for any clearances from them.

I'll give you another example of this, IBM. The details were very complicated even then, and I certainly don't pretend to remember them all now. IBM was obviously, in those days, more than dominant in the U.S. computer industry. It was pretty much the whole game. It was quite unusual, but IBM had a wholly-owned Japanese subsidiary, which was in existence when I got there. Japan was a lot more closed to foreign investment than it is now. It was just not done. They preferred technology licenses for their firms to foreign-owned subsidiaries and in the computer business had Japanese licenses, but IBM had a wholly-owned subsidiary. In exchange for that, IBM had agreed to license all of their technology and all of their patents to Japan for a period of time. There was also an arrangement, whereby, for every computer which IBM imported into Japan, there had to

be, say, two built in Japan by IBM Japan. It was a clear effort, on the part of the Japanese to use the IBM arrangement to create a Japanese computer industry, which is natural. IBM knew that this was happening but felt it was worth it to have a share of the Japanese market. They also agreed that there would be a certain amount of export activity by IBM Japan, maybe to the U.S. I know that there were IBM people posted out there from the States that thought that the arrangement was not a good deal for IBM. My point is that I don't think anyone in the U.S. government had a clue that this type of thing was taking place. I did report on it. I have my doubts about the audience, but it seemed to me then and it seems to me now that these are things of enough importance that somebody in the U.S. government ought be aware of them.

Q: What about Japanese commercial people and officials that you would call on? How did you find them?

KRATZER: First of all, I had a wide acquaintance with the nuclear community before I went to Japan. I tried to keep that up even though there was an AEC scientific representative. The other people I met in all of the Japanese government departments and in the companies couldn't have been nicer. I had a local employee who was a competent interpreter. I couldn't have done it without him. Not so much to communicate with the responsible officials, because a lot of them spoke acceptable English, but just to set things up and to go through secretaries who didn't speak English would have been totally out of the question without local interpretation. I had good relations. I still admire the Japanese and have continuing contacts with many of their nuclear people.

Q: Were there any particular points of conflict that you got involved in between the Japanese government and ourselves?

KRATZER: The most significant thing that took place while I was there was the final Japanese decision to ratify the NPT, the Non-Proliferation Treaty. They had signed it earlier but, for a variety of reasons, held off their ratification. I had a friend in the Japanese nuclear community that I kept in close touch with. I don't think that I had much to do with their eventual ratification, but I certainly had a useful contact. It was useful for them to know from people, including me, that their ratification of the NPT continued to be important to the U.S. I don't think we had any major outright disagreements other than my feeling that what was happening was not being paid a great deal of attention to in Washington. It was just a feeling that they were rapidly gaining on us in a lot of fields, which is fair game, but largely as a result of the base of U.S. technology that they were very consciously using. There was nothing unconscious about this process.

Q: Did you make this known? Obviously, you were writing your reports in but how about other contacts within the embassy? Was this picked up as a theme?

KRATZER: I don't think so. Perhaps that was a feasible avenue to express my concerns, but I guess I didn't see it that way at the time.

Q: I am not sure. I probably would have gone but I am just wondering?

KRATZER: I don't think it would have gone very far, but I really didn't try. Another nuclear area that I had gotten involved in, which was a presidential initiative on our side, was uranium enrichment. At that time, the balance of payments thing was heating up, and there were a number of efforts being made to help reduce the trade deficit. One of these involved the proposition that we might get the Japanese to invest in a private uranium enrichment activity in the United States. That may have been a couple of billion dollar investment. It was big enough for the president and prime minister to talk about. I became actively involved in the discussions on that, which were between the private U.S. company involved, Bechtel, and the Japanese. There were a lot of interesting projects but I would characterize them in two ways, at least in terms of whether I found them interesting and found them worthy of reporting and spending significant amounts of time on: first, if they were really not science but technology; second, if they had policy implications. Anything in the nuclear field has policy implications, sometimes of a non-proliferation nature. The business of the rate of progress, that is our competitive standing with each other, also has policy implications. I don't for a moment think that I was the one who discovered it, but the whole issue of competitiveness with the rest of the world and Japan, in particular, became a really major issue in the U.S. several years later. I think it happened to some extent because we didn't keep our eye on it.

Q: Did you feel that Japan was at that time a really closed market?

KRATZER: Oh yes. Sure. I never knew how they accomplished it. Anyone who spent time there believed this was true. You didn't see U.S. goods except in rare circumstances, especially in those days. You could buy their goods cheaper in the U.S. or in the PX than the Japanese could buy them in their own outlets.

One of the small but very significant outcomes of my assignment in Japan took place on a trip home from Japan. There was a conference of U.S. science counselors and attachés from around the world. I told Herman Pollack during the conference that I thought he ought to rename what were then called generally the science counselors to science and technology counselors. He did not delay. He thought that was a legitimate point and he did that. To the best of my knowledge, they are now called science and technology counselors or maybe minister counselors, I'm not sure.

Q: During your time from 1973-1975, was it a matter of some frustration you think?

KRATZER: Oh, no. I wouldn't put it in those terms. I was just trying to address the question of what I thought was important and interesting. There was so much to do that I didn't have time to be frustrated. I'm sure I must have been having feelings about who is reading my reports. I guess I still wonder, but I think I know now a little bit better than I knew then what some of the obstacles are to action in fields like this. It is very complicated. I still think - and I don't know the answer to it - that reporting by science counselors or science and technology counselors requires that a considerably higher level of attention has to be achieved for anything to be done. The whole issue of competitiveness, that became so prominent, is still unsolved, though now we think we have solved all the problems. I don't believe we have. I think there is still a major gap in

many areas. Everything looks good because our economy is healthy and theirs seems not to be, but I can't believe that we can continue to have something like a \$200 billion trade deficit, of which \$30 or \$40 billion is with Japan, indefinitely. I don't think that's sustainable.

Q: When you left in 1975, you were invited back. This was to become a Deputy Assistant Secretary?

KRATZER: Yes.

Q: For the new bureau?

KRATZER: Right. It was for the new Bureau of Oceans and International and Environmental and Scientific Affairs. We called it OES. This was a bureau that was created by statute, as the people who passed the statute were careful to point out. In that sense, although it was an outgrowth of Herman's science bureau, OES really was the invention of Senator Pell from Rhode Island who incidentally had been a Foreign Service officer and who was very interested in oceans. He was the promoter of the statute that created a bureau that had "oceans" in its title. If I am not mistaken, the legislation specified that it would be headed by an Assistant Secretary, which Herman was not. The first Assistant Secretary was Dixie Lee Ray, who had been chairman of the Atomic Energy Commission before it was divided into the Nuclear Regulatory Commission and the Energy Research and Development Administration. She thought that she should get one of those two jobs as a sort of logical consequence of having been the last chairman of the AEC. She didn't get it, so she came to State with maybe a little bit of a chip on her shoulder. She was a very interesting character. I thought very highly of her but she had her interesting points. The bureau was created, at least she took it over as first assistant secretary, about the first of January at the same time as the Nuclear Regulatory Commission and the Energy and Research and Development Administration were created out of the former Atomic Energy Commission. I got there probably in March of 1975 and, by May, she announced her decision to leave and did leave to run for governor of Washington, which she won. She served one term and then couldn't get re-nominated because of her somewhat interesting characteristics.

Q: I never met the lady but was told that she wasn't a very good fit at the State Department. Could you explain?

KRATZER: Some of this is anecdotal. She did come with a certain amount of a chip on her shoulder because she thought that she should have a somewhat higher job. People claimed that when she was offered the job of Assistant Secretary at State that she thought that she would be *the* assistant secretary, not one of 10 or whatever the number was. I find that hard to believe. She was not a career bureaucrat and maybe she did lack some knowledge of the bureaucratic ins and outs. She did say to me on more than one occasion, "Well, when I leave you'll be a better bureaucrat than I am."

Let me give you an anecdote. When I got back, she had offered me the job of Deputy

Assistant Secretary. It was understood that it was to cover nuclear matters. In fact, it was understood on her part that it was to cover energy technology with nuclear matters most prominently included but energy technology in general. The job had no title but I don't know if it was customary even then for deputy assistant secretary jobs to have a specific title other than deputy assistant secretary. For one reason or another, she thought, and I thought, that it would be best to have such a title with energy displayed in it. I got back and she said, "I got some disturbing news. The Assistant Secretary for EB," who was Tom Enders, a big tall fellow, "is objecting to this." He says that energy is his business. I said, "He is in the economic and commercial aspects of energy. I'm dealing with energy technology." She said, "I can't get anywhere with him." So, I went down to see him and it took about five minutes and the problem was solved. I became the Deputy Assistant Secretary for Nuclear Energy and Energy Technology Affairs, and he had no problem with that. She personalized every thing. She was good at substance. That was not her shortcoming, but she would become involved in a disagreement with somebody, and it soon turned into, "This guy is a fool." That was her shortcoming. That's why she didn't get re-nominated and re-elected as governor of Washington. She was a delightful person in many ways. Things weren't too clearly defined but I was always her acting deputy when she was out. When she left, two or three months later, I became acting for her for sometime, but I didn't pass on the nuclear responsibility, which was my first interest.

Q: Were there any particular issues during this time that you were there?

KRATZER: In hindsight, perhaps I short-changed myself, but I really was just sort of a caretaker in regard to everything except the nuclear side. There were deputies for general science, for the environment, and for oceans. I really didn't delve deeply into their responsibilities. I continued to do the nuclear job, and while I was there the whole issue of non-proliferation became far more active and attention getting than it ever had before. It was attention getting at the top level of government. This was a result of several things.

First of all, the Indian nuclear explosion took place in 1974, which said to people that proliferation was a real and not just a theoretical problem. It had sort of receded into the background because nothing had happened since the French and Chinese explosions, and while they weren't welcome, they were permanent members of the security council. The Indian nuclear explosion, though it happened shortly before I got there, turned things around at the congressional and senior policy levels.

There were also extensive sales of what we regarded as dangerous high-proliferation risk facilities, to Brazil, to Pakistan, and to South Korea. These were very hot items. There were discussions that were just getting under way with a group of five or six countries, the so-called nuclear suppliers. These were to be held in London under UK auspices with the purpose of trying to get agreement on common policies in terms of supply. In other words, none of us would undercut each other from the standpoint of non-proliferation in selling nuclear goods and services to other countries. The whole issue of non-proliferation once again attracted very high-level attention. Those were the days, for example, when the first legislation was passed that said, if any country engaged in nuclear enrichment or in processing, we would lower the boom on them. That was the

so-called Symington amendment to, I guess probably, the Foreign Relations Act, and the Nuclear Non-proliferation Act of 1978, which was passed in 1978 after I left but on which most hearings were held while I was still around. Yes, it was very, very active, and it was more than a full-time job.

Q: How did you find Kissinger at times? Kissinger was renowned for having a focus on some things and a non-focus on others. I was wondering how he dealt with this.

KRATZER: Well, I was told that, before I came back, Kissinger had expressed himself as doubting whether it was our business. He had been turned around on this as a result of such activities as I was describing, the sale of nuclear goods to Brazil, South Korea, and so on. In any event by the time I got back he was, I would say, generally on the non-proliferation band wagon. He was in tune with national policy, but probably did not attach as high a priority to it as did others, especially on the Hill.

A day or two after I started, he was holding a meeting - I can't remember the subject matter - which probably had to do with proliferation, but I'm not even sure of that. Dixie said to me, "You go up there." One of her stocks in trade was to say that she could never get to see the Secretary. It wasn't true as far as I know. I don't know that she was ever turned down. The meeting started, and I had never seen Kissinger other than on television. I'm sure he had never seen me, and he looked around the room and said, "Where's Dixie?" There were 20 people in the room and the only person he didn't see that he thought should be there was Dixie. There are two sides to that story. I said that she had other business, or something.

I was far from a confidante of the Secretary, but I did have substantial contact. I went with him to Pakistan when he attempted to talk Bhutto into not going ahead with reprocessing. We did not know at that time that they were also working on enrichment. Maybe they weren't yet, but if they weren't already, then they were shortly afterwards. Kissinger clearly was trying to implement U.S. policy.

When Nixon was still in office, which was before I returned, he had made a trip to the Middle East. He went to Israel and Egypt, and had offered to provide nuclear reactors to each country. I don't know if anyone knows what the exact words really were. He certainly didn't mean a grant because, if he had meant it, he couldn't have delivered on giving them away. But, it was appropriate that we would enter into agreements with them that would allow them to buy reactors from the United States, which, up to that time, they hadn't been able to do. The Israelis had one of our research reactors. But it wasn't foreseen that Israel and Egypt were the right kind of countries to receive power reactors because of their rivalry and adversary status. We did successfully negotiate with both the Egyptians and the Israelis very unique agreements that we thought might get past Congress. These nuclear agreements have to be reviewed by the Congress. They never were passed because the election changed all that. The point is that Kissinger was directly involved in that when Sadat came over. Kissinger made the major policy decisions. When one looks at those, they sort of split the difference. In other words, he shaded what many people thought should be the non-proliferation policy vis-a-vis Israel and the Middle East

just by being willing to enter into agreements, particularly with Israel, which didn't require the Israelis to put Dimona under international safeguards. They were tightly written agreements under which Israel and Egypt would not be permitted to reprocess, or, in other words, to extract the plutonium from any of the fuels in these reactors. If the agreements had come into being, the Israelis and the Egyptians would have been able to buy reactors and fuel from us, but that did not come to pass.

A major issue that came up, shortly after I came back, was the issue of fuel for India. When the Indian nuclear explosion took place in 1974, we suspended shipments of nuclear fuel to them until they agreed to cease making bombs employing our fuel. They already had so agreed, but people wanted a certain icing on the cake. Kissinger suspended the nuclear fuel agreements that we had to fuel their first nuclear power reactor until they gave us further assurances that they wouldn't use it in bombs. They gave us those assurances, and the State Department's position was that we should go ahead and resume fuel shipments. I was the officer largely responsible for making that decision, although, obviously, it got the support and concurrences it needed in the Department.

By that time the Nuclear Regulatory Commission had come into being, and it was given - probably initially as almost a drafting error in the drafting of the legislation that created the Nuclear Regulatory Commission - the export licensing authority that the Atomic Energy Commission previously had. This was a crucial development because the NRC was an independent regulatory body to which the administration couldn't say, "We want to export this, so approve it." They had a procedure that had to be met before an export license could be granted, which involved the opportunity for public comment and then public intervention in a sort of judicial proceeding. This was the first export license in which there was public intervention. This led to a hearing before the NRC for a period of weeks. I testified for about a day, about eight hours spread over a couple of days. They finally did issue the license to India. All licenses to India after that were turned down. In fact, some of them actually became a matter of congressional action, and I believe they were either turned down or approved subject to conditions. The agreement with India has now expired but, even before it expired, we discontinued exporting nuclear fuel to India. There were all sorts of things going on, mostly related to nuclear proliferation. That was really the focal point of my tour as deputy assistant secretary.

Q: You were mentioning, off mike, that on January 20, 1977 the Carter administration came in. How did that hit your office?

KRATZER: I had reached the conclusion in my own mind that I should not continue. I assumed that that would be the conclusion that the new administration reached. I'm trying to remember when I was so informed by the incoming administration. I honestly can't remember whether it was before or after that date. I do remember exactly who told me and where it took place. Joe Nye had been designated by this time - I don't know how he could have been confirmed before actual nomination - but maybe it was a job that didn't require confirmation. Joe Nye had come into the Department, I think his title was Assistant to the Under Secretary for Non-Proliferation. He was to be the nuclear non-proliferation czar. The title didn't sound like terribly much, but he was the nuclear

non-proliferation czar. I had met Joe previously. He was a professor at Harvard. He is now the head of the Kennedy School. Until fairly recently, he had been in the Clinton administration as, I guess, Assistant Secretary of Defense Policy, or something. He is a man of considerable parts and had very strong views on non-proliferation. Joe came by my office and said, "I've been thinking about this, and we feel that, because our policies are so different, we need to have somebody else promoting them." I said, "I agree." So that was how that came about, and I stayed on roughly a month but had *de facto* relinquished my responsibilities to other people. I left the Department and that was as it should be.

Q: That's the normal thing. Then you actually retired?

KRATZER: I retired with career status, as far as I know. I don't think I lost that. I think I was told that, if I wished to stay, there was a position in London as a science counselor. I didn't even really consider it. I just decided it was time to leave.

Q: So then you went into private...?

KRATZER: ...private industry and worked nearly 10 years in a private firm. Then, I retired from that, but still do a limited amount of consulting and lead a fairly active life. I'm still connected with non-proliferation and nuclear safeguards, including working as a consultant to the Nuclear Regulatory Commission, which is very much engaged in safeguards in the international as well as domestic safeguards area. I speak fairly frequently on non-proliferation in nuclear affairs and nuclear safeguards.

I must say that I am somewhat alarmed by some of the things that have happened quite recently, particularly in Iraq, if you can believe the reports. I haven't heard anyone question them. I don't believe everything I read but if it is not questioned there is good reason to believe they are more or less accurate. Apparently, we have advised the Security Council that they should go easy on Iraq in enforcing the inspection rights that were given to the Special Commission. I think that has very serious implications, not just for the Iraqi situation, but for the whole future of verification. If we're going to pull the rug out from under the inspectors, then we are not going to have a verification machine that's up to snuff. If the UN and IAEA inspectors can't rely on us as at least an advocate, if not a protector of their rights that they have been given by agreement and Security Council action, that is really serious.

End of interview