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PREFACE

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Parline R. Plesset
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Mrs. Ernst Plesset
(Name, typed)

Oct 5, 1993
(Date)

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Plessett first describes his work as a physicist at Douglas and his transfer to the RAND project in 1946/7. He then discusses his role as head of the Physics Department after David Griggs left RAND, working with Edward Teller and others on such projects as the H-bomb study, work of the physics department for the AEC labs, tension between RAND and the USAF, the relationship between the Physics Department and other departments, and his reasons for leaving RAND in the mid-1950s.

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ORAL HISTORY INTERVIEW

Interviewee: Dr. Ernst Plessett

Interviewers: Martin Collins, Joe Tatarewicz

Date: February 9, 1988

Place: At Dr. Plessett's home, Woodside, California

Mr. Collins: We'd like to begin our discussion about your professional activities with your experiences at the Douglas Corporation.

Dr. Plessett: Yes. I guess I was the first experimental physicist to show up at Douglas. And they needed one. They had no one, and once in a while a problem came up of some import which I knew how to do, so I got promoted rapidly. I didn't know anything about electronics, but I ran the electronics activities and the experimental part of it, that's the truth. I took the job, and then I was promoted to be assistant research manager of the laboratory there. Now the laboratories weren't really research. They were primarily test laboratories.

When Project RAND was formed, Seymour Weber (Jimmy Lipp?) was research manager. He was very well trained for that, his first job. Seymour, he'd hesitate too much for RAND. And I was saddled with that job. The first few meetings, four or five people, I sat in all of them. They didn't really know--they had no clear cut charter--what they wanted to do. I'll come back to that. You can imagine, Douglas Aircraft they said, here's somebody that's left, and I did.

About a year later, Don Douglas, Jr. talked to his father and said they ought to put it all together: experimental construction, missile, flight test, research lab. I ended up with the research. In a year I had management of the whole lab. He asked me what ? was. I'd sit in his office while he would tell barefaced lies to his father. Can you imagine? He destroyed the company. Took him a few years. In those days Douglas nearly had a monopoly of airplanes. As an aside, I got one of the first R&D contracts for the company with the Air Force. I was at Wright Field talking to a young captain, where I learned what was going on, he said he didn't think the Air Force would ever let Douglas test that airplane. They might buy one but they were never going to get an airplane from Douglas.

Tatarewicz: Who was the research manager who moved from Douglas to RAND, whose place you then took?

Plessett: Jimmy Lipp.

Tatarewicz: That was Jimmy Lipp. Okay.

Plessett: I didn't enjoy working for Junior. He was kind of a loudmouth. So I walked in and said, "I quit." And I had a hard time. He didn't believe it. But it became clear. Well, the man who was running the laboratory was a very good administrator--this was Richard Goldstein--and he said, "Ernie, you can't leave Douglas unless you come to RAND. You know we're trying to get physicists. You're the only physicist in the company. If you leave, how does it look?" So I said, "Okay, I'll come over." Goldie was a sly fellow. Dave Griggs was hired, sent to RAND to watch the nauts so they could have control of them. I was supposedly the man inside to keep them honest. A poor assignment. What started RAND, to my understanding, is a great flowering of budget between the Air Force particularly and the scientific community. Hap Arnold was talking to [Theodore] Von Karmann. He said, "We ought to somehow figure out how to keep this going, so let's start a project." He said, "We'll take it." He gave them ten million dollars. So what was it going to do? And it wasn't what Von Karmann had in mind at all, I'm sure.

Tatarewicz: When you moved over to Project RAND, were they still in the loft at Douglas, in the hangar?

Plessett: They were just moving out of the temporary quarters. Some of the people were right next to where the research lab had its headquarters, and where the engineering staff was. Then they moved from there to an old building in Santa Monica which had been a building for a newspaper. That was I guess in '48. What really pushed RAND towards operations analysis in-depth was kind of accidental. [Frank] Collbohm ran into a mathematician. Not a great mathematician but a kind of a promoter type, John Williams, who was very effective conceptually. John Williams heard of Ed Paxson (or hired Ed Paxson?). He did a brilliant job of systems analysis. It wasn't worth a goddamn, totally unusable, and I remember vividly Von Neumann giving me hell for it.

Tatarewicz: So they were not impressed by the products of Williams' own work.

Plessett: It wasn't Williams' work. This was Paxson's, who was a bright fellow.

Tatarewicz: It was Paxson.

Plessett: Yes. Bright fellow. He did an analysis on the atomic bomb. It was nonsense. But Johnny said, good mathematics.

Collins: Let's just back up briefly. I'm still unclear on why Douglas employed a physicist.

Plessett: Well, physicists can be pretty handy.

Collins: Just as kind of a generalist to help them when they were having problems?

Plessett: Yes. I don't know whether, first of all, they had C-54. Every time somebody important arrived they had me do the work. Actually, they didn't understand the simplest things about compression and ignition, and at least, spark plug at 20,000 feet. That ain't so smart. So I just said, "I have a spark plug with me. They can't be like that," and put it in the right place. Behold, they worked. I said, "It won't work." It didn't, so I fixed it. So that made me a hero.

Tatarewicz: It made you a hero to management. What about the engineers and the working groups?

Plessett: Oh, these were designed by a vendor, but the engineering people supported them. They had mixed feelings, and I had a lot of trouble with the electrical design people, who were uneducated. But I was an ornery son-of-a-bitch so it didn't bother me.

Collins: What were your relationships at this time with Dick Goldstein and Frank Collbohm? You must have had fairly frequent contact with them.

Plessett: Not with Collbohm. That was with Goldstein. He thought I was a smart ass and he used to tell me to come in on time. Sometimes I'd be an hour late. He said, "It doesn't look good." I said, "I'll try." And I tried.

Tatarewicz: Did you miss the academic world when you were working at Douglas?

Plessett: No. I left. I didn't like the academic world. I thought people were escapists, and they'd sit around and plot. Take a lot of smart people, have no job, no required activity, what do they do? Plot to get ahead. Without benefit of intellect. I would never--I wouldn't have been a physicist if I was to do it over again.

Collins: You referred to the fact that there were some early meetings in which RAND began to kind of work out the concept.

Plessett: When we get to that, I talked about Ridenauer. I remember how people didn't have a chance and Ridenauer would sort of suck around, ended up getting an assignment from the company to run the project. They didn't have anything else any more anyway. So he ran it for a number of years.

Collins: What were your initial responsibilities or activities, as part of the physics department?

Plessett: The physics department at that time was three people: Griggs, me, I guess we got Sam Cohen. Griggs had got the idea of building a ? airplane, and he had convinced Goldie, so they had a big symposium summer. It was clear it wasn't going to work. So he, as soon as he could, left RAND, got a job in the academic world. Griggs is a very bright fellow, not trained. He was a junior fellow, Harvard, where he got his degree. He was truly unsuited for the work but very bright and very articulate. So I was left with the physics division. From everything I knew it was clear that they were going to do what they were supposed to do: plan for the military and learn more about atomic bombs. I knew a little bit about that. So I very systematically tried to build the physics division. I just wanted to build up the quality, and it took some time. I spent about five years trying to get to the AEC [American Energy Commission] so we could get that information. The Air Force nominally supported it but they sabotaged it every time, for the right reason; they wanted to get in that position.

Tatarewicz: So the Air Force wanted to get the information from the AEC.

Plessett: The Air Force wanted to get the information and understanding about bombs.

Tatarewicz: And understanding that directly.

Plessett: Right.

Tatarewicz: In the circumstances, you were in competition with them for that.

Plessett: And every time we put in a request, they would go to the AEC to deny it.

Collins: But I think the requests for AEC clearances had to go through the Air Force, isn't that correct, for the RAND people?

Plessett: We could get clearance, if we'd go up there, but we never established rapport, but we did. The big thing the division did was, we helped the theoretical work both at Los Alamos and at Livermore, and we were approached to do some basic calculations. I asked Collbohm if we could do that. He said no. So we did it anyway. We got contracts from Los Alamos and Livermore. The thing which really cracked it is our people were working on this stuff and knew what was going on, and I had pretty good information. It was pretty clear it was going to work. So we did a study on the effects of the hydrogen bomb, to be delivered, to have important effects such as usually, statistically, and it was a devastating study. God, it was depressing.

Collins: Now, this was a study that you worked on with Charlie Hitch.

Plessett: Very probably.

Collins: And Jimmy Lipp.

Plessett: Jimmy Lipp wasn't involved.

Collins: He wasn't involved.

Plessett: No. That stuff in there is wrong.

Collins: It's wrong. Okay You were referring to Kaplan here, I assume, the Wizards Of Armageddon. Is that the one you're referring to?

Plessett: Yes.

Tatarewicz: That's where Lipp is identified as somebody who was on that study.

Plessett: He wasn't. He was interested in tactical problems, warfare problems. Somebody attached his name. But he wasn't on the study. Paxson did a study on it. There was a report he prepared, highly formalistic study, but it was the report.

Collins: So can you recall who worked with you on this assessment of the hydrogen bomb?

Plessett: Yes. The effects were done by a small group in the physics group. Hitch did the economics. Barlow did the political. He also delivered the tactical stuff, specifically, what a surface, three or four of them. It ended up with one briefing, which I gave all over the goddamned country. Actually Edward and I went on a two-man safari, which we gave to a lot of people, the point of which is, the second laboratory at Los Alamos was not working very hard at it. They worked harder at it at Livermore.

Collins: Now, when you say "you and Edward," you mean Edward Teller or Edward Paxson?

Plessett: Yes. No, Teller.

Tatarewicz: I get the impression, reading between the lines of a couple of the histories, that Frank Collbohm saw this study as a way for RAND to really score some points.

Plessett: Bullshit.

Tatarewicz: No?

Plessett: No. He wasn't that smart. He had a kind of ferret intelligence. He had no vision at all or very little vision. I brought him along, you know, by the hand, to look at Los Alamos security. I took him to Washington, took him to see LeMay, who couldn't hear it, didn't understand it.

Tatarewicz: Did anybody see this as a way to secure RAND's work in the Air Force's eyes? There's a certain experimental nature to RAND at this time.

Plessett: This was the first big study.

Tatarewicz: Yes.

Plessett: And it was a Lindbergh thing.

Tatarewicz: So there wasn't any deliberate seizing of this study as something to show and demonstrate.

Plessett: No.

Tatarewicz: You just did it itself.

Plessett: Yes. I don't know. Edward? and I gave it to the Air Force--what the hell do you call it, the senior board of the Air Force.

Collins: The Air Counsel.

Plessett: Air Counsel. And still they were saying we shouldn't go see Los Alamos. ? who drove through the Second Lab, and I asked him if I could go along. He said, "Sure." I went along with him and Bradbury threw me out.

Collins: When did you first become familiar with the atomic bomb technology? Was it something you were aware of at Douglas, or did it come to you after you came to RAND.

Plessett: All the physicists knew about it. I worked at Berkeley for the better part of a year. I remember, with ?, I gave a little chalk talk to the people you know, on the gun-type bomb. Any idiot could figure that out so I drew a picture of it, and Collbohm said, "For Christ's sake don't talk about that, that's classified!" He had been involved in helping in the delivery. It was a joke. Everybody knew what was going on at Berkeley.

Collins: So this is something you were aware of while you were at Douglas, then?

Plessett: Oh, sure.

Tatarewicz: I'd like to know more about the recruiting that you did for the physics division, when you suddenly found yourself in charge of the division. What was it like trying to get physicists to come and join RAND?

Plessett: Well, it paid pretty well, and it was in southern California, and a good part of them came from CalTech, and some of them, well, very many of them, my brother recommended.

Collins: You say Teller recommended them?

Plessett: No, my brother.

Collins: Oh, your brother.

Plessett: That's different.

Collins: Right.

Plessett: And I had a hard time. I remember telling Al Latter or somebody else, I said, this is an important question.

Collins: So what, besides the question of money and location, attracted physicists to the RAND situation?

Plessett: At that time, it was hard to say. Hermann Kahn was an interesting case. Sam Cohen had known him, and it took me a long time to figure out whether he was crazy or crazy and smart. I figured he was both. He really was terribly bright. He quit doing mathematical physics because of the bomb. He was developing a cross on mechanical IBM equipment, pro efficient and somebody in the math department got the idea he was a hundred thousand over in computing time. He complained to Collbohm. Collbohm said, "Fire him." So, go to hell.

Tatarewicz: Did Collbohm tend to operate in a kind of industry style, in his management?

Plessett: He didn't manage. He didn't believe in management. I deliberately did what I wanted. If I'd have been fired. Later, towards the end of my tenure there, Johnny von Neumann wanted me to set up a RAND for the AEC. I asked him formally. He said no. When I said I was quitting, he said you can set it up. I already had offered to set it up separately. I had a long talk with Johnny and with Strauss, and by that time, I was pretty antagonistic to the problem. I had a feeling that once I set them up, there was an obligation to keep them going whether it helped or not. It turned out, the Air Force figured out how to get around that.

Tatarewicz: One of the things that would be a big change for any physicist coming from a typical university atmosphere would be the culture of a corporate environment.

Plessett: Well, there wasn't any of that. The people, physicists, were working on pretty hard technical problems. And there were all of us, when I worked, certainly, there was a movement afoot for all of us to move out. It might have happened. I would have felt better. But I didn't want to torpedo to the corporation. It didn't seem fair. They subsequently all did move out.

Collins: What was the reason for this interest in moving away from RAND by the physicists?

Plessett: Well, why should they work at RAND? They didn't get anything out of RAND that was interesting to them.

Collins: In other words, there weren't laboratory facilities-- what was it they weren't getting from RAND?

Plessett: Well, I suspect I was more guilty of that, because at first the tension between the physics people and the rest of RAND--RAND was physically very isolated, had special clearances, barrier, and of course problems of ?. They were very autocratic, and I suppose I came to the conclusion that the management of RAND was pretty stupid. You know, they were scared of death of the board. The board had pretty good people, and amazingly enough, saw through it all. When I said I'd quit, every man on the board wanted to place me, to stop me, because when I would give formal talks to the board, they never thought our talks were poor, because they were always short.

Collins: Did you have any close relationship with Robert Bacher or another physicist on the board at that time?

Plessett: No, not so terribly much. He was very helpful. He's a good man, and very sensible. A member on the board I had a close relation with was Phil Morris. When I served on ?? south, I usually got to see Bacher.

Collins: Then during this period of the fifties while you were still at RAND, there began to be this interest in doing interdisciplinary studies. You had this early study to study the effects of the hydrogen bomb.

Plessett: That interest started with John Williams, who physically brought Hitch here, and Paxson, and that sort of colored it. It was always supposed to be taken interdisciplinary, that was the big catchword. But really, although they didn't call it that, it was operations analysis, presumably very in-depth, and that's a very hard thing to do. Predictions are very uncertain.

Collins: Right.

Plessett: Particularly scientific predictions.

Collins: As head of the physics division, you certainly must have been called upon to participate in these interdisciplinary studies.

Plessett: Mostly I refused.

Collins: On what grounds?

Plessett: Their studies weren't any good. I didn't want any part of them.

Collins: You mean they weren't well enough conceived?

Plessett: They were things like Paxson's study, mathematically, formalistically correct but the conclusions were wrong. Hell, it's like economics. Supply-side economics, the administration's economic policy. It's great.

Collins: Let me ask one question and then go on to another one. How large was the physics department staff after you built up the department?

Plessett: The smallest division. I think it had a total support of about 30.

Collins: And how did you suggest to the people who worked for you, say like Hermann Kahn, about whether or not they should participate in these interdisciplinary studies? Was it up to them?

Plessett: Hermann did. Hermann got interested. You know, Hermann believed in starting off in a new field every few years, and he did, and he could do it. He did a study on how to do systems analysis that was brilliant, brilliant, the funniest thing. He was a great comedian. He was offered jobs in economics, political science, history, mathematics, physics. He never got a degree. I remember one time, Johnny [von Neumann] and Hermann and I were all sitting around. Johnny loved puzzles. Hermann gave him one, and Johnny was sort of floundering. Hermann started kidding him. "You're not going to get it." Johnny was very competitive about it, and he just by force of intellect figured out finally how to do it.

Collins: Did other people in the physics department want to interact with, say, social sciences and economics and the other divisions, in terms of doing these studies?

Plessett: Not much. Hermann did. Hermann worked with [Albert] Wohlstetter on something.

Tatarewicz: Was Wohlstetter the type of person that the people in your division would work with, if they worked with anybody at

all? That is, did they have more respect for him than for the other soft science people?

Plessett: They thought he was a bullshitter. I think so, too. He's bright.

Tatarewicz: So both you and the people in your division did not see it to be useful to be interacting with the others.

Plessett: Yes. I think they were perfectly right. They did interact on a few things, where it was clearly very important. One of them was the missile defense. One of the Latters did a good study on the destruction of a missile by neutron gamma rays, etc. But he was very cute. He didn't get described by the parameters of the study; he described himself. He was the most interesting aspect of the whole study, and he knew it. He did it, got a lot of publicity for that.

Collins: Who are you referring to?

Plessett: Al Latter.

Tatarewicz: Al Latter. What did you do with the results of the studies that you were doing and that the people in your division were doing? Did you brief segments of the Air Force directly? Did you have to go through the same kind of briefing rehearsals and criticism sessions that everybody else did at RAND?

Plessett: Well, the only thing I personally did was this H-bomb study, which was first given at RAND to the board.

Tatarewicz: Not the trustees?

Plessett: The board of trustees.

Tatarewicz: The board of trustees was first given that briefing?

Plessett: Yes. They were the first ones to get it. Then we went on the trail.

Collins: What did you think of this process of going out and trying to persuade the Air Force or others?

Plessett: Well, I knew I wasn't afraid of anything. Here's what the effect of this damned thing will be, to the best of our ability to calculate it at Berkeley. You know, make up your own mind. Now, whatever Edward T. says is so important, you've got to make sure you do it. See, I first encountered Edward in this connection in '49. I was back in Washington on loan. Interesting story to that. To Phil Morris, who was there running a group of evaluators for the Joint Chiefs, and it was just at the time the Russians exploded the bomb. Well, Edward came through Washington, and I corralled him. I arranged for him to

talk to a number of Air Force people, and he loved it. All those generals. I have another story about Edward, which will fool you. He came to me one day. "My God, we've got to do something. We're getting all kinds of publicity, names in the paper. What can I do?" I said, "Edward, I don't know. There's a fellow downstairs who's a ?." So I brought him up. Edward talked to him for an hour. And he just sat after he left. "Well, you don't pay attention to what he said he says; you got to figure out what he wants. As soon as you find out, you go see the President, X, Y, Z, ... he wants it." Well, ?? relief.

Collins: You've mentioned how you built up the physics division. What were your connections, after you got it built up, with the university world? Did you have people who would come in as consultants or sort of short-term visitors? How did you keep up your connections with the university community, or did you?

Plessett: It was very easy. In those days they all liked to be consultants. Some were useful. You'd ask them if they'd consult and a lot of times they were great. Once, I lost out. Fellow who was at MIT. President of the corporation. Guy who was chancellor of the University of California.

Collins: You're not talking about [Lee] DuBridge?

Plessett: No, DuBridge was on the board. This was a younger man, who's now at MIT, president of the institution, that's the provost.

Tatarewicz: He's now president of MIT and he was a chancellor?

Plessett: In the University of California system.

Collins: We can fill that in.

Plessett: He consulted with us.

Tatarewicz: I get the impression that your division was kind of very much separate from the rest of RAND, and that for everything that was going on in RAND, you had your own particular kinds of similar activities going on, but it was just your division. You had your own consultants. You had your own problems to work on. Physically you're isolated by the security door and guards because of Q-clearance problems, and very much I get the sense, correct me if I'm wrong, but I get the sense of two RANDs, your division and everybody else.

Plessett: That's right. And the philosophy was really pretty different.

Collins: Can you elaborate on that?

Plessett: Well, perfectly happy sort of a problem to resolve which seemed to us to be potentially useful. But I don't think much of it was ever very good. Obviously I was wrong. But that was my impression and those of my colleagues.

Tatarewicz: Were you ever pressured by RAND management to come back into the fold, to participate more fully, to get your people to?

Plessett: No, not the management. People at the other divisions would come around, and I think there were certain people I respected and worked with. Probably a lot of them. And in fact, the physics division pretty much supported itself. Collbohm and his management style; every once in a while for no reason he'd cut the staff, announced a cut, nonnegotiable. I said, "We want to increase it." He said, "No." I didn't pay attention.

Collins: When you say you pretty much supported yourself, you mean through your contract with the AEC?

Plessett: Yes, we had a contract, a couple of contracts. We had one for fallout. The extent of fallout from atomic bombs at the surface wasn't understood, and we had contracts with Los Alamos and Livermore both. The most part of that fallout contract was first done by a couple of kids, in the electronics division. They didn't know how to do it. So, then I got Bill Libby to come up in the summer, and he really did it with a bunch of people.

Collins: Who else besides Livermore and the laboratories did you have contracts with? Did you have any direct contracts with the Air Force for any activities?

Plessett: No. We had two contracts with the AEC, one on fallout. There was another; what the hell was that?

Tatarewicz: Was it the nuclear-powered aircraft?

Plessett: No. We never had a contract. We worked on that after this summer. I worked on it personally. I signed the revised report. In fact I delivered the coup de grace which killed it.

Tatarewicz: But it seemed to keep coming back in spite of that.

Plessett: It took a long time. No, there was the last ditch --

Tatarewicz: Oh, you delivered the last one.

Plessett: The last.

Tatarewicz: In the late 1950s, 1960, something like that?

Plessett: No, 1953 or 4. And it was dead. But it took a lot of killing.

Tatarewicz: One of the areas that's mentioned in the annual reports is problems in shielding.

Plessett: Oh, yes.

Tatarewicz: Of nuclear materials. That might have been something that your division was working on.

Plessett: We did, but we didn't contribute anything. We have to be fairly hard-boiled about these things. I got a analysis in ? said I was not from the contractors--I got a designer from another place. They pushed the Conair people, saying it wouldn't fly. GE [General Electric] were the worst bunch of goddamned liars. At least the bulkhead.

Tatarewicz: They were building a power plant. They had it locked up. They had a very big stake in it.

Plessett: Well, they knew it wouldn't work.

Collins: Extracting from the annual reports, it looks as if you were also doing some work on what was called unconventional weapons design. Is that something you recall?

Plessett: That's filler.

Tatarewicz: That's filler in the annual report?

Collins: That was 1957. It's mentioned in there.

Plessett: I was long gone.

Collins: Okay.

Plessett: It wouldn't have been in there, had I still been there, unless we were talking about unconventional nuclear weapons.

Collins: We're at the end of a side of the tape.

TAPE 1, SIDE 2

Collins: One device that the RAND management used, Frank Collbohm and Dick Goldstein, were these weekly kind of management meetings that involved all of the department heads. Do you recall the character of those things, and from your point of view, their effectiveness?

Plessett: Not zero, but close.

Collins: Do you have to stop and take some medication?

Plessett: Yes. [interruption]

Collins: Resuming our discussion, you mentioned while we were pausing there the Technology Capabilities Panel. [TCP] Could you describe what your role was in participating in that exercise?

Plessett: It was made up of several groups. One was strategic, which was the one I was a member of, run by Marshall Holloway. There was a technical one. I forget who ran that. There was an intelligence panel run by Din Land, a very clever fellow, very smart.

Collins: And what was your contribution?

Plessett: Damn little. Damn little. Well, everyone lobbied.

Collins: How important was it for RAND to have your representation there?

Plessett: Well, it should have been useful to know what's going on in the world. I remember going round and round, looking at tons of people, target selection. What a bunch of crap.

Collins: What was your input as a physicist into this question of target selection?

Plessett: Well, I was an expert on bombs, so-called.

Collins: But I mean, did you have some sense, as knowing about the capabilities of the weapons, how targeting best might proceed?

Plessett: I was reluctant to get into that. That was a pretty furry subject, a lot of classification. I steered clear. I remember the one thing which came up again. There was a very bright Navy fellow, that's the guy who took me for the jet ride. The Navy had the big brass who generated the program, really flopped. They depended on Westinghouse. And he sort of lobbied pretty hard to get a recommendation to spend more money on developing jet engines, slashing around military ones. That was for Westinghouse.

Tatarewicz: So you saw your role then as strictly an advisor on technical matters. You didn't want to get involved in the more--

Plessett: That was a very controversial subject, and I didn't have time or interest to try to fight with the intelligence guy. And I had some other input. Bernard had worked on it for the Air Force.

Collins: Maybe we can fill that in later. I'm not sure who it was at the time.

Plessett: He was a pretty smart fellow, and my God, that was the early days. Well, better not. They didn't have very many bombs, so the plan was based on the number of bombs that they'd have mid-year. That was real shrewd of the Chief of the Air Force.

Collins: Here was RAND providing advice, suggestions, to the Air Force, and you had something like the Technology Capabilities Panel that fulfilled a similar kind of role. Did you have a sense of what the relationship was between the RAND kind of activity, and the activity of some ad hoc panel like this Technology Capabilities Panel?

Plessett: Well, that's a very complicated subject. The Capabilities Panel was an attempt to persuade [President Dwight D.] Eisenhower he ought to listen to scientists, and they sort of pushed that, and they put Killian on, who could say nothing but make it sound impressive. And I don't think anything came out of the Technology Capabilities Panel, except probably Land's contribution in intelligence, and I don't know what they did. I remember Dulles showing up, Alan Dulles saying in front of his colleagues, "They're a bunch of idiots. They don't know anything." That wasn't very good for morale. CIA [Central Intelligence Agency]. There were shocks.

Collins: The reason I ask the question is because the panel came out with fairly specific recommendations in various areas about how the military ought to conduct its business. In the case of the Intelligence Panel, they put forward the suggestion of the development of the U-2, as well as a few other ideas. In your area I'm not sure exactly what the recommendations were.

Plessett: My impression is, most of these proposals were things that had already been recommended. They didn't do anything new.

Collins: But essentially that was RAND's business as well as recommendations.

Plessett: Sure. Sure I remember Ed Purcell, who was a very bright guy, said, "All this stuff about satellites, nonsense."

Mrs. Plessett: What did he mean?

Plessett: It wouldn't work.

Tatarewicz: And at what time was Purcell saying this about the RAND satellite program?

Plessett: About that time.

Tatarewicz: '53?

Plessett: '54. Yes. When Lipp gave his briefing on satellites, he was earlier, and nobody paid much attention to it, until after Sputnik.

Collins: Did the physics division have any input into the Project Feedback study that included part of the development of the notion of satellites? Were you involved in any of Project Feedback?

Plessett: When was that?

Collins: That was like from '51 or '50, through '54, '55.

Plessett: No. Who did that?

Collins: That was primarily I think Jimmy Lipp's responsibility.

Tatarewicz: Bob Salter.

Plessett: Salter was there then.

Tatarewicz: Yes, Salter was very deeply involved in the Feedback studies and then went to Lockheed. '56.

Collins: And [Bruno] Augenstein.

Plessett: Yes. Have you talked to Gene Root?

Collins: No, I'm going to find out a little bit more about his status tomorrow. We're going to be seeing Ed Barlow, and apparently he's kept in touch with Gene Root. I don't know.

Plessett: Where is Barlow?

Collins: He's lives in Los Altos Hills.

Plessett: What's he doing?

Collins: I'll find out tomorrow. I'm not exactly sure what he's doing these days but he seems reasonably active. I know he was in Washington a few weeks ago, so he still gets around to travel and consult, and that sort of thing, but I don't know specifically what he's doing.

Tatarewicz: We have talked to Bruno Augenstein a couple of times.

Plessett: Where's he?

Tatarewicz: He's at RAND again.

Plessett: What's he doing?

Tatarewicz: I'm not exactly sure what he's working on right now, but he has an office absolutely crammed with books, journals, and papers, and he seems to be very active.

Plessett: He's very Satanic.

Tatarewicz: There's one aspect of Augenstein's work, specifically on helping to push the concept of an ICBM.

Plessett: That was already in the works.

Tatarewicz: Towards feasibility, and you were involved, I think, in collaboration with Augenstein on some of that.

Plessett: No. What he didn't know, unfortunately, was that it was useless; it was already in the works. They were already proceeding on that.

Tatarewicz: On the ICBM?

Plessett: Yes.

Tatarewicz: Where was it in the works?

Plessett: Well, again, Johnny was the key.

Tatarewicz: The Teapot.

Plessett: I don't remember the name. Bennie Schriever had already been selected to run it.

Collins: Well, I think one of the reasons that we followed this discussion on Augenstein a little bit is that when he found out about the hydrogen bomb, its lighter weight, this made the idea.

Plessett: Made it practical.

Collins: Practical. Did you have discussions with him about this?

Plessett: Yes. I guess, I suspect, I don't remember, as far as I knew.

Collins: We talked a little bit earlier about the systems analysis thing, but the notion of systems analysis played a very large role at RAND. I mean, it was kind of its rhetorical ticket, in a way. It was what they used to really sell the practicality of some of their ideas.

Plessett: One of the things, maybe you should understand--I may be dead wrong. The Air Force was not enamored of RAND by about that time, because they left out things which to the Air Force were very important. They were the things which are intuitive

largely, but correct. There was a lot of tension, even before I left, and a number of us spent a lot of time talking to Air Force people and talking to the people at RAND about how to improve things, how to get them closer. I remember when I came back from this I urged, and we did it the RAND staff, management, council to go to the Air Force, spend a couple of months talking to them about problems, and we really didn't get very far. The Air Force got somewhat reluctant to spill their guts, tell the people at RAND what they really felt. None of the people at RAND, so far as I was concerned, understood strategic bombing with airplanes.

Collins: Not even the work that resulted from the Albert Wohlstetter study?

Plessett: No. They didn't understand the Air Force. The Air Force didn't expect those guys to come back. They went over once, and that was it. But you know they weren't going to tell RAND that. Had to figure it out yourself. A couple of people at Boeing understood it.

Collins: I'm a little unclear on what was going on here.

Tatarewicz: The Air Force expected the pilots and planes to go over and not come back, and they never explicitly told RAND that?

Plessett: And they used what was then the --oh, what was the smart fellow at RAND?

Tatarewicz: In the basing study?

Plessett: No, the guy who'd been a Marine in Vietnam. Came back and wrote a very derogatory study. Married to a Marg somebody. Wealthy. He was a boy who was a psychiatrist, probably a psychiatrist's patient.

Tatarewicz: Daniel Ellsberg?

Plessett: Yes.

Tatarewicz: Ellsberg was a Marine.

Plessett: Yes. He used that to chop RAND. Had an excuse. They didn't say about that?

Collins: No. The initial concept of RAND, as it was forming, just at its inception, was this idea that the military needed to bring in civilians very intimately into the planning process. So what you're saying is, that aspect of it really was never fully realized.

Plessett: That's right. Not in my time. See, some were involved and so on. I was involved. Well, I think it even goes further. Charlie Hitch under [Robert] McNamara was comptroller.

Charlie told me at that time, "The Air Force doesn't know what systems cost." They billed us. That was nonsense. They deliberately said that. Because if they knew, you know, why should they be so smart. And Harold [Brown] let McNamara make a serious tactical error. He said the TX-5 and the Air Force airplane should be identical. That isn't true. It won't work.

Tatarewicz: Harold Brown?

Plessett: A very smart man. I got an aeronautical engineer to straighten him out. Then when McNamara left, the DOD [Department of Defense] really pilloried McNamara. Boy!

Tatarewicz: Do you think that there was an arrogance at RAND, developing through the 1950s, where they began to think that they were much smarter than the Air Force, and began to get impatient with the Air Force not heeding their advice?

Plessett: Yes. That didn't help. Because they were naive.

Tatarewicz: Because we see, I think, evidenced through the 1950s at RAND, of the people, rather than just responding to Air Force requests, attempting to take a more active role in saying the policy is all wrong, it should be this way.

Plessett: Yes.

Tatarewicz: Answering questions that the Air Force never asked.

Plessett: That was not undesirable, and there are cases I'm sure where they were right, but they got an arrogance, unjustified. I don't know. Wohlstetter gave briefings to the board of trustees that were shocking, his arrogance, and as far as the management was concerned, Wohlstetter could walk on water.

Collins: Could this be partly attributable to the fact that many of the people at RAND were academics and didn't really understand the military frame of mind?

Plessett: It's that simple. Some of it was the arrogance of the academician, which is proverbial.

Collins: What other elements come into play in that?

Plessett: Well, they just think they're so goddamned smart; they know everything. And certainly, in terms of manipulation of mathematical symbols, they're better, except a guy like our poker player.

Mrs. Plessett: Which one?

Plessett: Kent. Glenn Kent. Didn't have a Ph.D.

Collins: In your perception, did the Air Force understand and accept the validity of the systems analysis idea while you were at RAND?

Plessett: People were impressed by Paxson's articulateness and skill, but not his results. They listened politely through Lipp's thing on the satellite, with no interest. There hadn't been very many things presented in a formal way to the Air Force. You know, at the Air Force they have individual things. My ? would be reported. People would come. And they did. We helped the ? report on, when they were thinking of the hydrogen bomb, with liquid deuterium. That was a sort of a tough one, just to show ? We spent a lot of time with the people showing them how to design it, how to do that kind of thing, and I can think of other examples, other places where ? pay attention.

Tatarewicz: So individuals at RAND on specific problems did some very valuable things for the Air Force.

Plessett: Yes.

Tatarewicz: And various people in the Air Force recognized that and would come to the individuals.

Plessett: Yes, people would come and ask for help and would get it. But as far as the grand concepts, that's mostly bullshit. This will not be consistent with the other oral histories you get.

Tatarewicz: Oh, they never are. There are points of congruence.

Plessett: I'm old enough, sick enough, so that I'm going to tell it as I see it. Fuck 'em.

Mrs. Plessett: Did you really tell them what you think of Frank Collbohm?

Plessett: Pretty clearly.

Mrs. Plessett: How badly he ran RAND?

Plessett: Pretty much.

Mrs. Plessett: The deleterious effect he had on the morale? I remember Bernard Brodie. Pretty difficult.

Plessett: Oh, yes. This was when we were making, going around on the H-bomb study. We gave it to Lovett, who's a very polite gentleman, and Bernard said, he was criticizing policies. This was policy on China. Back at the hotel [Larry] Henderson-- goddamn him-- took his projector, just raised her, put it up on top for a second there. Tactless. And that man should have quit on the spot, and he stayed. He could have gone back to Yale

where he had a chair. Bernard was a nice sweet guy. He stood for that.

Mrs. Plessett: Why did Collbohm get away with all that?

Plessett: He didn't do it to other people. He didn't do it to the crowd around--he didn't do it to me. He could do it to Bernard, who was a sweet guy.

Mrs. Plessett: Why didn't the trustees see through it?

Plessett: They did. They finally fired him.

Tatarewicz: They took 15, 18 years.

Plessett: People think trustees, you know, are really potentially interested. They don't want to mess.

Tatarewicz: They had had a very difficult time finding anybody to be director of Project RAND, and finally seem to have settled on Collbohm as a last resort.

Plessett: No, it wasn't like that. No.

Mrs. Plessett: Why didn't they make you--

Plessett: That would not have worked. If anything screws that up, there'd have been a blotletting.

Mrs. Plessett: But you'd have been great.

Plessett: That's hard to say. I wanted to--I prefer comfortable.

Tatarewicz: How did Collbohm stay in so long?

Plessett: Who cared? Not their apple. Can't expect that trustees pay much attention to an enterprise, to an organization.

Tatarewicz: What about Goldstein? Did he take an interest in the day-to-day running of the place, in the areas that Collbohm wasn't handling?

Plessett: No. His technical understanding was pretty limited. He's a very good personnel man. He's very good at making a fellow feel good. He's not necessarily straightforward but he's a nice man. And it's interesting, he has all the peer reviews.

Collins: We're working on it.

Plessett: Well, he'll be very careful. He won't say (?) things.

Collins: You mentioned briefly Larry Henderson. Did you have any direct relationship or work with Henderson in the Washington office?

Plessett: Oh, yes. Saw a lot of him. Henderson was a fellow trying to get along in the world without much talent.

Tatarewicz: We get the sense that Henderson at the Washington office, in addition to handling the kinds of diplomacy that has to be done with a patron, with the Air Force sponsors and with the Pentagon, also seemed to take care of a lot of short time response requests. That is, the Air Force would ask RAND for a quick answer to this or a quick answer to that.

Plessett: He didn't have the ability to do that.

Tatarewicz: No, but getting them answered. Brokering the answering of those requests. It's been suggested that he almost acted as a shield, so that Santa Monica wouldn't get over-burdened with these kinds of quick turn around work requests.

Plessett: Well, he wasn't completely popular with the Air Force people. So I think there was some truth to what you're saying.

Collins: What was your sense of why he was not completely popular?

Plessett: Because he didn't show good sense always in responding, and he was scared. I remember when I was in the WCG he came in, pressing on his stomach. "I'll show you what" Big deal.

Collins: Under what kinds of circumstances did you usually interact with him? What was the nature of your working relationship, in terms of the kinds of things that you would work on together?

Plessett: We didn't work on anything together.

Collins: In terms of exchanging information, whatever.

Plessett: Well, it was on the surface, you know, telephone, transportation. I remember there was someone in the Navy had the idea to try to set up a steering committee for guidance of the RAND Project. Showplace, and they didn't know what they were talking about. I knew enough to stop it. NYU. But that was rare.

Collins: You mentioned John von Neumann a couple of times earlier. He worked in the mathematics department.

Plessett: He spent most of his time with us.

Collins: Is that right?

Plessett: Yes.

Tatarewicz: He would just come for a month at a time.

Plessett: No, he'd come for a few days, a week. I would see him at Livermore, Los Alamos. I was very attached to him.

Collins: Was the relationship between the physics division and the mathematics division different from its relationship say with the social science area, or did you have a closer interaction with the mathematics division?

Plessett: They worked on game theory, which was an interest of Johnny, who let us work out random numbers.

Tatarewicz: I wouldn't call it a myth, but one of the stories about life at RAND in the fifties is that not only did everybody work together harmoniously.

Plessett: That may be true.

Tatarewicz: As a big, happy, excited intellectual family, but their social life after work was also very much intertwined.

Plessett: I couldn't testify to that.

Tatarewicz: I was wondering, did the people in the physics division mix socially after hours with people in any of the other divisions of RAND?

Plessett: Not much. I was at John Williams' house a couple of times. I was at ?'s house socially a couple of times. And I met some of the RAND people at Murdoch but that was not a deep interaction. No, what you say may be perfectly true, but we were outside somewhat.

Tatarewicz: One other question that I had about the quick turn-around answers that the Air Force wanted to get from RAND from time to time: that proved to be distracting for long-range research?

Plessett: Is that what they tell you?

Tatarewicz: That's what some of the people found in their work, that the Air Force starting to ask RAND to give them quick answers on short problems, and sometimes fending those off wasn't easy.

Plessett: What period was this?

Tatarewicz: It seemed not to become a problem until the mid-1950s, around '55, or '56.

Plessett: I see. That's when I was gone.

Tatarewicz: In your capacity in your division, you were working on AEC contracts.

Plessett: I remember planning results on the delivery, Wright Field, and we gave them some help on that, and a nice one star general tried to put the bite on me. It didn't work.

Tatarewicz: You were able to deflect these --

Plessett: I just told them, no. We didn't do that. I was a hard lot. We had dinner, which I paid for, and he understood.

Collins: So in some sense you kind of protected your staff from these kinds of intrusions on their work.

Plessett: Well, we were always happy to help. If we had done something or could do something simply which would be useful, we'd do it. We weren't just negativistic, but still, you know, I didn't want to be in the posture of always being turned on and off by some general. A general's a general; they don't do anything. Anything above a major doing the work is rare.

Mrs. Plessett: But Glenn Kent did.

Plessett: That's Glenn Kent. He was a four-star general. He got the Air Force general, thanks to Harold Brown.

Collins: Because of the higher security clearances in the physics division, did that affect your ability to publish your studies, or did you still use the usual RAND publishing mechanism for studies that you wanted to get out? How did that work?

Plessett: Well, there were just two occasions when I was there for publishing information in the Physical Review. Anything we did, you know, at least would be confidential. Most everything we did, justifiably or not, was secret. I remember the first study those characters did on the fallout at AEC, and [Isidor] Rabi said, "What's classified about that?" And it wasn't. But you know, they were all so hypnotized, that they automatically put "secret" on everything. But that was all--some things that weren't all of general interest.

Collins: Were you still publishing things through RAND as research memoranda, reports, and that sort of thing?

Plessett: Yes. Sure. The reports to the AEC, some of those I guess did not get into the system. I don't remember.

Collins: One other mechanism that RAND had for communicating internally was something they called D-Documents, where somebody could write down their preliminary ideas about something, a discussion paper that would circulate in a limited fashion within the corporation. Do you ever recall utilizing that as a means of working out ideas?

Plessett: No. I remember writing some memos to people who were doing a systems study, giving my version of what they'd done, how to present it, an unofficial memo.

Collins: So in other words, you would occasionally write a memo as a critique of someone else's work or something like that.

Plessett: Yes. I enjoyed that.

Tatarewicz: Did you attend other people's briefing rehearsals?

Plessett: Not much.

Tatarewicz: Another aspect that gets a great deal of attention in accounts of RAND is the briefing rehearsal where people are encouraged to criticize.

Plessett: Yes. That was done. That was done.

Tatarewicz: Did you do that in your division?

Plessett: Oh, there's a couple who came from MIT, and they got exposed to those tirades, and it just devastated them. Physicists are just bastards when it comes to that.

Tatarewicz: So you played just as rough.

Plessett: Oh, rougher! I didn't do it. My colleagues did. It wasn't me.

Collins: In 1956, I'm not sure, there was a reorganization of RAND in which the divisions and the departments were shuffled a little bit.

Plessett: They created super-administration. I was not there then.

Collins: Okay. That was just after you left.

Plessett: My impression is that it didn't work. These guys were suspended in space, had no authority, couldn't do a goddamned thing. It was so structured that the only authority resided in divisions. The only thing, the only weapon that the management, and that would not include this super-group, would be on pay. And you know, there was not much they could do about that, that

would affect the division, on them. They paid pretty well by the standard.

Collins: It sounded like when you were the head of the physics division, you had a fair amount of autonomy. You were a fairly independent act.

Plessett: That's a fair statement.

Collins: Was that a conscious decision by Frank Collbohm and Dick Goldstein to give the division heads that kind of autonomy, or was it something that you were just a strong character so you took it?

Plessett: I just took it.

Collins: What were the thoughts that led you up to leaving RAND?

Plessett: I wasn't getting paid enough for working with those kinds of jerks. I was tired of it.

Collins: So you were frustrated?

Plessett: No, I wasn't frustrated. I wanted to do something else that I thought would be more interesting. Certainly in a financial sense it was not there.

Tatarewicz: It would be useful to know how much longer we have to go today.

Plessett: I'm very stimulated.

Mrs. Plessett: It's been an hour and a half.

Tatarewicz: Okay, we don't want to wear out our welcome.

Mrs. Plessett: Is there half an hour's worth left?

Collins: I don't really have too many more questions right now.

Tatarewicz: No, I think we've gotten a very good sense of how the physics division fit within the rest of RAND.

Collins: I guess I would like to ask you to kind of give a summation of your RAND experience. What was interesting about it, what were the less interesting, or aspects that were a drawback?

Plessett: Well, I think it's self-evident.

Mrs. Plessett: It's what?

Plessett: Evident.

Mrs. Plessett: No, tell them.

Tatarewicz: It may be self-evident to you, but--

Plessett: Well, in a sense, we were trying to predict the future, how you should plan for it, and I think that's an extremely difficult field. The future is very uncertain. What's the Stock Market going to do tomorrow? That's easier than what RAND was trying to do.

Collins: Did you feel that the Air Force needed some kind of function like this, or the government needed some kind of function like this, to help them see into the future?

Plessett: Well, if you have people who are bright and interested, there are always a couple--it's easy to say the Air Force is stupid. They're not. Or the Navy or the Army. A lot of them are but there are some that are pretty smart. Their training is very limiting, and people who are expert in scientific areas can be helpful. I don't think you can gain a lot by having a thousand people. Yes. You know. A thousand people can't come up with the ideas that one man like von Neumann can. It isn't divisible that way. So if you can tap those people, ask them important things, von Neumann and a few more like that are worth all of RAND. Now, how do you go about in an administrative way getting that? That's very hard. The only way you know how to do it is have a big organization and a few people who come out of it who can do things. Like universities. How many people in a given university are worth a goddamn?

Tatarewicz: This is another way of asking the same question, about what RAND contributed. When you got to private industry again after leaving RAND, in the first couple of years, what did you miss most?

TAPE 2, SIDE 1

Plessett: RAND did make a real contribution in its own way, and that is that they introduced the idea of formally looking at the problem, trying to get a solution. They may not have been able to achieve solutions worth anything, but the idea of studying them was strengthened by having RAND, and that shot up into the Defense Department, hitting people like ? and Harold Brown. Had a real impact, and it's continued, and that in a sense was contributed to by RAND. So I think that was an important contribution, and it's all right to derogate and denigrate what they did, what the Air Force did, but that much is factual.

Collins: One other broad aspect of what RAND was created to do was to look at the implications of technological change, the advent of the bomb, the introduction of the hydrogen bomb, the introduction of missile technologies.

Plessett: Electronics technology.

Collins: Right. Do you think that either RAND as an organization had an important role to fulfill there, or individuals had an important role?

Plessett: The trouble was--for instance, when I was at Westinghouse a couple of boys came through, wanted to know what at Westinghouse was new. I said, "Don't tell them. Just answer questions." And that's the experience. Nobody's going to tell you what they have in mind for tomorrow. So RAND, a place like RAND is sort of hung on. You know, the airplane companies wouldn't tell you their development. They'll answer questions. They're very cooperative. I told these people, "Be very cooperative. Tell them anything they want to know, but they have to ask for it. If they don't know what they're doing, they can't ask." That happened everywhere.

Now that was why to me it was crucial that we get in bed with the laboratories. See, a couple of our people were up there, were a major part of the theoretical division at Livermore. They were key people. They knew how to solve problems. They were up there more or less continuously for a year. Al Latter particularly. And the guy who ran the theoretical division, I had fired because he didn't like him. He was a good man, but you know, they were kind of key boys. I've forgotten his name but he's a pretty well-known physicist, but they wanted a new boy so they plotted, and I had to apply the axe to get him fired. They knew everything anybody knew about it. Now you can't get that kind of position in other areas that are relevant. Chester Markum, when he first came, was still current in both, and in the world of electronics, and he made some real contributions. But after some years he was out of touch.

Tatarewicz: Was that a continuing problem at RAND?

Plessett: Yes.

Tatarewicz: Becoming isolated, losing touch with what was going on in the outside world?

Plessett: Yes, because these things are done by industry, and industry has to keep these things to themselves. It's a matter of self-protection. That's the trouble. Now the Air Force understands, too. They send people to school to learn technology, aeronautics, electronics, physics, and they finally, know pretty well about bombs and bomb pressure.

Tatarewicz: I'd like to turn my previous question around, and ask you, when you left RAND and went to Westinghouse, what aspects of RAND did you miss the least? What were you glad never to have to fool with again when you left RAND?

Plessett: Well, it wasn't like that, not that simple. It was different. I wanted to do something different. RAND was easy and no pressure. I had all the time in the world.

Mrs. Plessett: But it didn't seem really in the real world.

Plessett: Well, it was pretty good for me. The other thing is that [Robert] Bacher wanted me to come up here and run the Stanford Research Institute. That would have been interesting. I'd have been fired after a year. I thought they were a bunch of (?)--a boondoggle.

Collins: Getting back to my previous question, did you think from your experience at RAND that the Air Force needed assistance in looking at the technical implications of new technologies?

Plessett: Everybody needs that. That's like motherhood. Of course they did. They needed people like Teller to tell them about airplanes. It's useful. Like Johnny to tell them about computers and missiles. That's useful.

Mrs. Plessett: Could they have gotten them without RAND?

Plessett: Yes. But in some ways RAND was helpful in telling who was who, although they were pretty good at finding out themselves. But there weren't that many people at RAND who could really give them advice. Charlie Hitch was a pretty good economist, but economics is a pretty uncertain business. Ask Reagan. So, yes, they didn't cost much, RAND. They can get mischievous, in the sense that they don't really know what the hell the score is. Because, you know, they've got a certain amount of notoriety, they can get some publicity, which can be mischievous, can be right, can be wrong. So the people in Washington like everybody else don't like to be second-guessed, right or wrong, and that was a source of some of the early tensions. You know, they thought naively, they'd go to RAND, give them a tough problem, RAND would come up with a brilliant solution which the Air Force would turn over and get the credit. It doesn't work that way.

Collins: I think we've covered the ground reasonably well with this time. I think we can stop here unless you have anything further you'd like to add.

Plessett: No. How long will you be in town?

Collins: Until Thursday morning.

Plessett: If you have any questions, I'll be around.

Collins: Okay, very good.

Tatarewicz: Thank you very much.