

This is an interview of Dr. Robert Depue, who played a key role in the Virus Cancer area in the National Cancer Institute during the period from 1950 to present, taken on June 27, 1995. The interviewer is Dr. Carl G. Baker, former Director of the National Cancer Institute.

Baker: Bob, before we get into some of the questions that I sent you, could you tell us a little bit about your background, where you went to school and so on, what your degree was in, and that sort of thing, and experience?

Depue: Okay. Well, undergraduate training was at Carnegie-Mellon. It was then Carnegie Institute of Technology. I graduated in '53 as a major in organic chemistry.

Baker: Oh, I didn't know that.

Depue: And I was always interested in biology ever since high school, so I went on to the University of Illinois for graduate school for a year in biochemistry, where I did work on the enzyme system that converts galactose to glucose, UDPG and all that stuff. And then the Army got me. I had been an ROTC Officer at Carnegie and was forced to go in the service then. And I stayed in the Army about 4 years. I was going to stay in it permanently but, after some training programs and stuff I was sent to Ft. Detrick, where I worked in the lab with a guy who crystallized *Botulinum* toxin. Wonderful stuff. He used to have great jugs of it on the table with the crystals settling down in it.

Baker: That's about the most toxic stuff known, I guess.

Depue: You betcha. You betcha, and that was quite some interesting times at Ft. Detrick. In fact, that's where I got married. My wife was Chief Nurse in the hospital there.

Baker: What year are we talking about here?

Depue: Let's see, I went in the Army in '54, and this is '55 through '58, approximately, at Ft. Detrick. And I got to know a lot of people there, including, unfortunately, some of the CIA people. I knew the guy they helped jump out the window. So, those people sat at this end of the Officer Club bar and I sat down at the other end because I didn't want to

be too close. And my first child was born while I worked there. She was born in Walter Reed. So then, I remember that my wife needed some blood after the delivery, and they asked me to come down and help replace it and I said, "Okay." So, I went down to Walter Reed, and they said, "Have you had any immunizations recently?" And I said, "Oh, yes." And they said, "What?" I said, "It's classified secret." They said, "Go home." I had a secret shot record. Yes. In fact, the first month I was there I went in every day and got an immunization.

Baker: Of some kind?

Depue: Of some kind. For a whole month.

Baker: I didn't have that many in the Navy.

Depue: No. And, oh, there were all sorts of things. My wife helped take care of the first guy at Ft. Detrick that died. They had had an accident in the pilot plant one day--I think it was in the pilot plant-- a spill there, and he reported the spill to the Safety Division. That was a Thursday or something. And then on Monday his wife called in and said he would be, he was a civilian, said he'd be on sick leave. And they said, "Oh, yes? Well, where is he?" "Oh well, he's in Frederick Hospital with pneumonia." And all sick leave requests had to go back to the Safety Division, and they put the two things together and said, "Oops!" So they sent the ambulance and a couple of corpsmen down to Frederick Hospital, wheeled a litter up the hall, went in his room without saying anything to anybody--a doctor, a nurse, or anything--put him on the litter and hauled him out while people were chasing them down the hall and took him to the hospital where my wife nursed him for 10 days before he died. Pulmonary anthrax. Bad stuff.

Baker: Bad stuff.

Depue: So, that was part of it. But anyhow, that will come out again later in the story. Then I was sent to France by the Army, where I was made Chief of Clinical Chemistry of the major Army Hospital that they had in those days in France at Orleans.

Baker: A different kind of chemistry than what you'd been doing?

Depue: Yes. Well, I had been growing germs and finding out what the germs did to people's metabolism and stuff. But now I was assigned to the medics from the "comical corps" (Chemical Corps), assigned to the medics and put in charge in a hospital lab of clinical chemistry and the photo lab for some reason, where I worked for the year. And I was trying to get the Army--I was going to stay in then--to send me back to graduate school, but the time was running out and they kept delaying things to send me back to school to finish the Ph.D., because the time was getting such that I was going to lose my earlier credits at Illinois. So, that finally didn't work out, so I finally resigned, and I came back and went on the G.I. Bill back to graduate school, to Hahnemann Medical School, where I took basically the same first two years as the medical students. Not exactly, but mostly. But then I went off in the lab and ended up with a Ph.D. in microbiology.

Baker: Yes. I knew your degree was in that. When you were in the Army, did you run into Irv Gray, Irving Gray, at the Walter Reed?

Depue: Not really. No.

Baker: Well, he had worked in the Laboratory of Biochemistry in the Cancer Institute when I was in that lab. And he stayed in the Army. I just wondered if you might have.

Depue: The name is vaguely familiar, but I can't really place it. I didn't spend much time, except as visiting a patient, down there. My time was all up in Frederick.

Baker: Okay.

Depue: So I majored in microbiology and minored in pharmacology with an emphasis on the biochemical aspects of these things, and I got my Ph.D. at Hahnemann in one of these, you know, it was kind of a combination program. You'd start out like an M.D. candidate, but then you end up in the lab. One of the interesting things I think about that is that one of my Ph.D. advisors, an old fellow, had worked during World War II on

the penicillin program, on developing penicillin and learning how to produce it.

Baker: Produce huge quantities of it. Bob Coghill, I don't know whether you remember him in Chemotherapy at NCI; earlier he was in the Department of Agriculture in charge of their scaling up penicillin.

Depue: Well, my advisor, his name was Emito Bondy, and he was having to do sensitivity tests all the time, and in those days you did the old tube test. It took six dilution tubes to do one organism sensitivity. So, he finally got this bright idea. He took out his paper punch and he punched little circles of paper and he dipped them in the antibody and laid them on plates, and he invented that, which revolutionized the world of medicine, and yet nobody knows it. It was fascinating to work with this guy. And my Ph.D. work was on antibiotics, mainly penicillins, and *Staphylococcus* penicillinase. I grew up cultures of fully virulent *Staphylococcus aureus* resistant to penicillin.

Baker: Already that early?

Depue: Yes. Already. And harvested the organisms into 15-20 gram batches, ground them up and extracted the enzyme and purified it. And then it was just the time that 6-amino-penicillanic acid was becoming available. Just up the street was SmithKline & French, which we had connections with, and so I'd go up there and they'd give me some of this aminopenicillanic acid, and then I would start to synthesize my own penicillins by hooking those side chains up, a whole series of things, to see what the side chain structure on the penicillin did to its sensitivity to destruction by this enzyme. So that's what I did. And then I went on and did a postdoctoral. This time it was in biophysics.

Baker: was that?

Depue: Well, it was done at Mellon Institute in Pittsburgh. I was there two and a half years. And I was working with electron microscopy, and we were working on muscle proteins. We would purify all the proteins, contractile proteins, from muscle--actin, myosin--and then try to reassemble them into subunits until we could get back to the active myosin,

which is again contractile, and try to see how they went.

And I remember one of the papers I published--I didn't publish too much from there--but it was that F-actin is a right-handed helix. Well, I sent that off to *The Journal of Biophysics* and they accepted it, without a correction, right away. Well, people knew that it was a helix. My contribution, by using shadowing, because you can tell top from bottom then, was to say it was right-handed instead of left-handed.

I thought to myself, "Everybody thinks this is wonderful but," I said, "it's useless." And so I said to myself, I said, "What is going on?" So, the postdoctoral was finishing, and I left, and I said, "Here I am. I've been from organic chemistry to biochemistry to microbiology to pharmacology to biophysics."

Baker: A good mixture.

Depue: Yes. You can call me Jack, but don't call me "Master." So, I decided-- Somebody said, "You should be an administrator." I said, "Hey, that's not a bad idea." So I came to NCI.

Baker: And was this Bob Stevenson that recruited you?

Depue: Yes. Yes, it was.

Baker: So he's the one that said you should be an administrator?

Depue: No, he didn't say it; it was the people back at Pittsburgh.

And so I started out administering, being the "Digger O'Dell" of the Cancer Institute.

Baker: Well, partly.

Depue: I supplied human parts and pieces to anybody that wanted them.

Baker: We should clarify what you mean by "parts and pieces" here. Mainly to get human tissue and cells, not whole organs, I guess.

Depue: No, not usually. Tissues.

Baker: I mean, that wasn't the reason anyway?

Depue: Well, we did tumors, we did sera, we did normal tissues, and so on. We developed a

program which-- I didn't develop it. It was there when I arrived. But it was a program of sterile autopsies for tissues. It was done in an operating room, with permission of course. And we collected tumors from pathologists after they would take what they needed for diagnosis; we'd use the rest.

Baker: You had to convince them not to fix the tissues?

Depue: Exactly.

Baker: Which took some doing in those days, I believe.

Depue: Yes.

Baker: Especially in a lot of places.

Depue: Yes. In a lot of places. The place we started was at Roswell Park Memorial Institute in Buffalo, New York.

Baker: Yes. We had a big--

Depue: A big contract up there. Yes. And I was Project Officer on that. And we had a liaison person there.

Baker: You dealt with George Moore?

Depue: Yes. Sure. Sort of.

Baker: An interesting fellow.

Depue: I dealt with the Pathology Department more than anything. But they were into promoting research in all of this and they were happy to have this contract which supplied them with people and money and stuff to do these things.

Baker: Well, I think we should make it clear that this was a service to the scientific community, both on the part of NCI with the funding and the managing of it, and their carrying it out was a contribution at that time that was considered badly needed.

Depue: Yes. Right. And I specialized in those things. Other people specialized--in Bob Stevenson's branch--specialized in animals. Other people had cell lines and cultures. And I was supervising collection of fresh and frozen tissues and sera.

Baker: So your programs, of course, had to link in with those programs?

Depue: Yes.

Baker: And part of the job was coordinating all of this?

Depue: Yes. Coordinating it and acting as a call-up shop for people who would call up and say, "Hey, I need this to do this," and something, and then--

Baker: You had some interesting people you dealt with too.

Depue: Well, yes.

Baker: Do you want to cover that later?

Depue: It led from the tissue business, but it wasn't really directly a part of it. One of the first things that we had going, which was assigned to me because it was providing sera, was a project in Ghana. Prior to my coming there, and just about up to my arrival at NCI, the NCI had staffed a project in Accra, Ghana which was called "The Uganda Cancer Institute." It was done at the behest of Kwame Nkrumah. And we had NCI people that were sent there to help develop these research labs and research program in Ghana.

Baker: The Burkitt's lymphoma was the main driving force behind this?

Depue: Well, no. It's what became the driving force, but it wasn't when it started. Burkitt's lymphoma was worked out while they were there, because this was in the days when Burkitt was still--

Baker: Running around spotting where the disease occurred and the epidemiology?

Depue: Exactly. And this was one of the places of disease concentration, and they found out about it and got interested in it. And, well, when our Government started having trouble with Nkrumah they pulled this whole project--all the people--out. They sent them home.

Baker: Ken Endicott made one trip to Ghana, and he loved to rattle off some of the African names, such as Ouagadougou (in Upper Volta).

Depue: Let's see, who were some of the people in Ghana? George Burton worked on the project and he came back here. Dick Morrow, who was very dedicated to Africa was working on it as an epidemiologist, and he went to East Africa from there and didn't come back here except for a short time. He went to Uganda, which I'll get into in a little while. And then there was a very well trained pediatrician there by the name of Francis Nkrumah, who happened to be the son of Kwame. He was a graduate of Berlin Medical School, did his pediatrics training at Harvard, and came back to Uganda and took over, especially when our people left, as a doctor there treating-- Well, he became Head of Pediatrics too. On our project he treated Burkitt's lymphoma. And we collected the sera and stuff. And an NCI person by the name of Virginia Perkins stayed on. She was the only NCI person that stayed. And we converted it into a project run through the U.S. Embassy in Accra. And I was Project Officer of that thing.

Baker: Well, that sera was put to use.

Depue: Yes. It was brought back here and it was used in a lot of immunologic studies and so on. One of our biggest users whom I got very acquainted with were the Henles at the University of Pennsylvania, and I supplied a lot of sera to the Henles because they were very talented immunologists and they liked to get these sera and test them for Epstein-Barr virus in relation to Burkitt's lymphoma. And we also got control sera obtained locally. So they did complete surveys. It was just before that time that Tony Epstein had isolated EBV virus from chronic lymphoid cell lines, and it was found out that almost every cell isolate that was developed into a cell line and was lymphoid had EBV in it, and those lines that became the source of Epstein-Barr virus, some of which we also developed through these projects in Africa. We did more line development in our Uganda Project, but we also did some in Accra. So I had the virus containing sera, and the Henles were interested to see what the distribution in the world was of this virus. And they finally found that it was widely distributed. Across the world, 85-90 percent

of everybody has antibodies to it. But we were suspicious because here is a virus that converts a cell line in tissue culture that would normally die out into a permanent ever-living cell line. That makes this virus a good cancer candidate. And, of course, when we found out that all the patients with Burkitt's lymphoma had very high titers to the virus, this became of interest as the first--one of the first--human virus candidates for cancer, and that was very exciting. And one of the other things the Henles also did was found out what EBV does normally in all these other people around the world who are positive for it. They had a gal in their lab who didn't have antibodies to it, and they drew her sera regularly as a negative control for their experiments, every day. So, one day they were running their experiments and damned if their control didn't turn positive.

Baker: Yes. I remember that.

Depue: And she didn't come back into work and they said, "Where is she?" "Oh, she's sick."

Baker: They didn't know she was sick?

Depue: They didn't know she was sick until then.

Baker: But she really had symptoms?

Depue: Oh, yes. She was sick. And so when she came back to work they asked her, "Where were you?"

"Oh, I was sick." She said, "I had infectious mononucleosis."

And they tested her again and, by Jove, yes, she had a very substantial titer that rose over this period.

Baker: And that led to this linkage between EBV and infectious mononucleosis.

Depue: And that led to them saying, "What does EBV normally do?"

Baker: Well, this is an interesting virus in its effects.

Depue: And I remember them calling me one day. I was one of the first people to know about this. And they said, "Guess what?" And I just loved the Henles. They were nice people and the best immunologists I ever knew.

Baker: Yes. Straightforward and--

Depue: And they were two of my kind of heroes. And so this got me more and more interested in the African part of what I was doing. And so they had done some early treatment in a few places in London with some English doctors who had come down to Uganda which is where Burkitt's lymphoma is very prominent and where actually Dennis Burkitt did most of his work following out the occurrence of this thing.

Baker: You met him a few times, I guess?

Depue: Yes. I met Dennis. And so the Cancer Institute decided to send some treatment guys over there to see if we couldn't develop some treatment for this because here was what looked like a virus, although we didn't have a definite connection yet, except we knew we were getting EBV out of the cultures. So, they sent John Ziegler over to establish a treatment center in Kampala. And he and his wife moved over there. And then Dick Morrow came with him as an epidemiologist and there were several other people who eventually ended up there. Brian Henderson went, but he didn't work for us at that time. I don't know who supported him when he was over there. I guess we did eventually, with the Treatment Project. I say "we," but this was the Division of Cancer Treatment doing this. So, I was just an observer and, through Dick Morrow, also we got a serum collection project going there, and we got a lot of serum from around there. And another important person who was there in Uganda was Malcolm Pike, a very fine epidemiologist, who trained under Richard Doll and actually organized Richard Doll's smoking project, the first thing. That's what he did for his Ph.D. But he was now down on what they called "secondment" in Kampala to the medical school there. One of the things the British left in Uganda when they withdrew was a medical school, and a pretty good one, and Oxford was the main school that was the British school that was the seconding school for the Uganda Medical School, and they regularly sent people down. Well, Malcolm was interested in this and he was interested also in Burkitt's lymphoma,

and so he was down there on secondment and I got to know him on my visits to Uganda. And so, as everyone knows now, John Ziegler and his other physicians developed the first successful treatment of cancer that was totally drug oriented. They were able, in 80 percent of the cases eventually, to cure Burkitt's lymphoma with drugs only; no surgery, no radiation.

Baker: Wasn't it amazing how rapidly those tumors shrank? It still is a remarkable thing.

Depue: Yes. You could almost see them going "whoosh." In fact, there was so much toxicity from all that tissue resorption that you had to be very good at medicine so that these kids didn't go into shock. In fact, one of the principles of treating this thing was not to treat it quite so hard if you saw that happening, because you might lose your patient from just too fast resorptions, because these tumors could get very large.

Baker: Yes.

Depue: Grapefruit-sized in the angle of the jaw and, of course, they existed internally too.

Well, John Ziegler won the Lasker Award for this.

Baker: Along with several others.

Depue: Along with several others.

Baker: I was on the committee to select the people.

Depue: Oh, were you?

Baker: A couple of years, yes, including that one.

Depue: Great. It was great. And then eventually he returned to NCI and became the medical officer in charge of--

Baker: Medical Director.

Depue: The Medical Director. Yes.

Baker: Of the Institute.

Depue: Of the Institute, where he had some troubles. He and the Director didn't see eye-to-eye on a lot of things. And, of course, John was used to running his own show where he

had been, but he couldn't run the Division of Cancer Treatment like that back here. So, I can't really say too much more than that, but John didn't stay--for several reasons--too long in that position, which I thought was too bad. But there were other troubles. One of them was that before they left there was a revolution in Uganda, and Audrey Ziegler one day was driving down the main street in town where a couple of the exiting officers stopped her car and pointed their guns at her and told her to get out, which she did. They got in and drove away and, all of a sudden, Audrey remembered, "Oh my God, my baby is in the back seat." So she goes running down the main road hollering and waving at them, shouting about the baby. And they look in the back seat and, all of a sudden, they make a U-turn in the road, come down the road at her, and without stopping, I think, held the baby out the window where she grabbed it. She never saw the car again. Well, Audrey had some interesting times there. Audrey, by the way, was the Chief Nurse for John's project and ran the nursing staff for it. She was a good nurse. But after John left, the head of the project was passed to Charles Owani, who was a graduate of Uganda Medical School and a damned good pediatrician too. They had sent him for postgraduate training somewhere--I guess Oxford--and he came back and then did this project. He was a good doctor too. One of the other stories they have about leaving Uganda was the one about one of our doctors being approached by a guy who was Army Attache at our Embassy. And he said, "Well, it looks like I'm going to have to stay on because we were closing our Embassy. I'm going to have to stay on until the last minute, but I'd like to get some of my stuff out. Here, would you take this--"

Baker: A duffel bag?

Depue: A duffel bag. "And take it home to Washington for me and I'll pick it up when I come back." Well, the head of Uganda was making broadcasts all the time about spies, especially American spies and all this stuff, and it was getting pretty tense. So, our doctor goes through at the airport where they were doing, much to his surprise, exit

inspections. And they said, "Well, what's in the bag?" They said, "Open it!" So, he opened it. And all this officer's camouflaged uniforms fell out. We were just about to lose one doctor. Through some quick talking and so on, he got on the plane and left the bag, with a few choice words for the Army Major when he got back. Spies. There it is. Well, that's so much as it was working around there. Well, what else? Well we've got to talk about the West Nile Project.

Baker: Which project?

Depue: West Nile Project.

Baker: I don't know about that one.

Depue: Oh, I think you do. You don't know it by that name, but that's the name I call it. Well, we were talking about Uganda and Burkitt's lymphoma and EBV, which by then were known. I don't know who pushed this, but I think it was John Higginson. He came to the Cancer Institute with one of his virologists, Guy de Thé, and proposed to do a prospective epidemiologic study of Burkitt's lymphoma. And they wanted a contract to do it. Now, they were at the International Agency for Research on Cancer in Lyon. And Frank Rauscher came to me--I was his assistant at the time and he was Division Director, I think he was Division Director then.

Baker: No. I think he was Section Head.

Depue: Who was Division Director?

Baker: It depends on the date. I was, before I was Institute Director.

Depue: That's right. I was still back in Bob Stevenson's Branch.

Baker: And then Rauscher moved up when I went to Director.

Depue: Right.

Baker: It's hard to keep dates straight.

Depue: I have a terrible time. So, they wanted to do this prospective study. They were going to follow 30,000 African children in the northern province of Uganda which is called the

West Nile District--

Baker: Now, I remember this.

Depue: --until they developed tumors. And they would bring them in and bleed them and store the blood and, after they had acquired an adequate number of cases, they would take these and take controls out of the bank--the bank was in Lyon--and they'd see what the pre-disease immunologic status of the kids were.

Baker: Paul Kotin could have still been Division Chief at this time.

Depue: He might have been. Yes. I think you're right. It wasn't long after that though--

Baker: I was very active in this out of the Director's Office, but I think Kotin was still there.

Depue: But it wasn't long after that when Rauscher moved up, and I went with him. He asked me to. And so, because of my prior exposure to Burkitt's stuff in Africa, I was the only one in Bethesda that had that exposure at that time. They said, "Well, you will be Project Officer of this study." I said, "Great."

Baker: Natural choice.

Depue: Well, I liked it because I said, "Now, there is something that is really special to do," as far as I was concerned. And I said, "I'd love it." And we started out and did it, and I visited some more times over there, and watched them get started and see what they were doing. Now, the people that were involved in the study from IARC (International Agency for Research on Cancer) were Guy de Thé and the Project Director, Antoine Gazier. Antoine wasn't from IARC. He was from Denmark and was an epidemiologist. And Antoine was the field guy and de Thé, well he traveled too, but he stayed in Lyon more, but Antoine was on the road almost 100 percent of the time. And I made some visits. I remember one of them going up there. Now, the West Nile District was Idi Amin's home country, and he was kind of scary. I remember going up there once. We drove up and we crossed the Nile at Pokwatch. I always liked that name. It's a little town right there. And it's the only bridge across the Nile. And, of course, it was a

military thing. And, of course, when you crossed the Nile they had to search you fully. Like the guys with their automatic weapons slung on their shoulders would lean over and go through your bag while their weapons pointed at your head. Well, I did a lot of slumping down on the floor.

Baker: Well, you survived anyway.

Depue: Yes. So we get to West Nile. We went up there. And the way the thing was organized was that they had field teams. Each field team was headed by a medical assistant, who was not an M.D., but more than a nurse, in Uganda. They're the ones who are responsible for most medical care in the outside places. And they'd go around and usually set up shop under a nice shady tree, often a mango tree, because that has nice shade and fruit. And they'd bring the kids from the surrounding community in to be bled. And the parents could come with them. And the medical assistant would examine anybody who claimed to be sick and give any kind of treatment--shots, antibiotics, whatever.

Baker: That was the pay-off for giving blood?

Depue: That was the pay-off for coming in, yes, and bringing the little kids who we bled, and treated too if they needed it. They got a full exam too, under the mango tree.

Baker: It sounds like the name of a novel.

Depue: Yes. Uganda is very different from West Africa. West Africans are very chummy and live in villages all packed together. You go out to Uganda, and they live out there on the plains as far away as they can from one another given the existence of water. And so you have family compounds which were circular houses with only one outside entrance, an interior court, and no outside windows. Well, that's the difference in the sociology, east and west. So, I was going up there and I was going in one of the assistant's vehicle--not the medical assistant, but one of the other boys that was working--and I walk into this family compound and there was a kid of about ten, I

suppose, and he takes one look at me and runs screaming. I said to the African guide, "What's wrong with him?" He says, "Oh, he just saw you. He's never seen anybody your color. He thinks you're a ghost." I said, "Boy, now I know I'm out in the woods." So, this is where I went. I was doing these projects and collecting the sera. And eventually they had enough and, when they found a case, of course, they referred him down to Kampala for treatment at the treatment center. Charles Ziegler's people treated them. And so it was beneficial for everybody.

Baker: They provided transportation?

Depue: Oh, yes, we did.

Baker: You'd have to.

Depue: Oh, yes. And flew them a lot. There was a little airport on the West Nile which was a grassy field. That was the West Nile Airport.

Baker: I'll bet some of those children had quite an experience flying for the first time?

Depue: Well, we took the family too. One or two parents could go.

Baker: Well, them too. Because most of them had never flown before.

Depue: Oh yes. And I remember a good story at the airport while the project was going on. Audrey Ziegler had a Canadian friend of hers, who was living there, call up and say, "Audrey, how would you like to get some air time?" Audrey was learning to fly and she wanted time behind the stick. And she said, "Sure." So, they got up to West Nile and buzzed the field to drive the cattle off it and then landed. They came around again and landed. And they came up there and the only thing up there at the field was a little shed. So they went up there and they looked in the shed, and there is a guy by the name of George Kafuco, who was head of the East African Virus Research Institute, which was a three country thing, and he was the local chief of our project. He had come up to see how things were going. And one of Amin's soldiers grabbed him, tied him up, shoved him in the shed, and was pointing a gun at him. They were going to shoot him

because he didn't have the accent of the local West Nilers. He must be a spy.

Baker: Neither did you have the local accent.

Depue: Well, they could see that. They knew I was European, so they gave some preference to Europeans. And, of course, all the people that worked on our project carried U.N. passports, so that helped, but this soldier couldn't read.

Baker: It didn't help.

Depue: No. It didn't help. So he was busy trying to call Kampala to see what he should do with this guy when this American-Canadian came running up and said, "George, what are you doing there?" And the soldier decided, well, he could let him go. But that's kind of the way things sometimes went up there when Idi Amin was running things. That was his home country and he didn't want any people snooping around. Well, we got to see some of Idi Amin's wonderful places, like where he fed the bodies to the crocodiles. That was a good place too.

Baker: Where was that?

Depue: I guess he won't get me if I tell. It was along the Nile in one of the game parks.

Baker: When you were in Ghana, was Gerry Meyer in--

Depue: Yes. Gerry was the administrator for the project. Yes. I'm sorry. I forgot to mention his name.

Baker: He became the Administrative Officer with me when I was Scientific Director for Etiology. He was one of the best A.O's I ever saw. Later, he was way high up in the Food and Drug Administration, and he just retired, I think, last year.

Depue: Oh, did he? I haven't heard about Gerry for years. Well, thank you. Gerry was the Administrative Officer that NCI sent to Ghana to administer the project, but when the big project closed he came home. Only Virginia Burkitt stayed on.

Baker: Yes. But Gerry, I assume, was very helpful because he was very helpful to me in Etiology.

Depue: Oh, yes. Absolutely.

Baker: A very efficient fellow.

Depue: So, that was the kind of nature of the project in Uganda. And what they did finally, because George Kafuko was an expert in malaria, was collect malaria smears on every child. They used the West Nile Airport, when they found patients, to fly the patient down to Kampala, especially if they were very sick. They didn't always fly them, but they didn't have to take them overland always, although usually they found the case early enough that they could. So, they eventually got enough cases and started testing the sera. And, as mentioned, they also collected blood smears, thin and thick blood smears, for malaria analysis on all the children when they bled them. And they were supposed to be done for looking into the cofactor of malaria, which everybody said may be even more important than Epstein-Barr virus in as to the ultimate outcome of the infection. But unfortunately nobody has ever analyzed those sera that I know of.

Baker: That's a shame.

Depue: I think they're still stored in Lyon. You see, George Kafuko wanted to read them, but Guy de Thé wasn't in favor. But anyhow, at the point when they finished the project and analyzed the sera I wasn't Project Officer anymore. The results of the thing showed that the kids who came down with Burkitt's lymphoma earlier had very high titers. Now, a lot of the other kids had titers, but they didn't reach the height of the titer that kids that later developed Burkitt's lymphoma had. So this was the first direct prospective data connecting EB virus with Burkitt's lymphoma and the first human tumor to be confirmed as a virally caused one.

Baker: With sufficient data to really hang your hat on accurately.

Depue: Yes. Not the only one, but the first one.

Baker: Yes.

Depue: So that was all very exciting. Well, as I said, when the big time came when they read

the sera, I wasn't Project Officer anymore.

Baker: Were you back in this Country?

Depue: I was now up with Frank Rauscher as his assistant in the Division Office. John Moloney felt that he didn't want any of his contract projects officered by foreigners, so to speak, or those who didn't answer directly to him. I went to Frank and I said, "Frank, that's dumb." And he went to John and said, "Yes, John, that's dumb." But John insisted. So, I made one last final trip to Uganda to take Paul Levine, who was going to take over all the African projects from me. We literally went all the way around the world together and I introduced him to all the local people and so on. Now, Paul Levine, who worked--

Baker: You didn't get to introduce him to Idi Amin, did you?

Depue: No. No. But-- No, no. Stay clear of that. But one of the other things that the IARC did on contract was (also at de Thé's suggestion) a study of nasopharyngeal cancer (NPC) in the Far East. And de Thé organized subprojects in Hong Kong and Singapore, and I got to go to those places too. As it turned out, all of the people who developed the NPC had high titers to Epstein-Barr virus too. This was known before we started. And so we decided to do a prospective study on NPC there. And since this was an adult cancer, we were bleeding adults mainly, going through the tenements and enrolling people and doing all this.

Baker: Did you actually draw blood samples yourself?

Depue: I guess I didn't. I didn't see any reason to do it. We had people to do it. I could have. I've done that. But the treatment for NPC was radiotherapy. And that was an effective treatment. It cured about 65 percent of the patients.

Baker: It was also effective in Burkitt's lymphoma.

Depue: Yes.

Baker: They didn't use it because the drugs were easier to administer.

Depue: The drugs were easier and safer. NPC tended to be more localized too, whereas Burkitt's lymphoma wasn't. I mean, a lot of Burkitt's lymphoma would hide out in the ovary and the testis and all of that, which was all over the body in a sense.

Baker: No. My only point was that that tumor is sensitive to both.

Depue: Yes, I understand it is. Yes, you're quite right.

There was a Chinese guy in Hong Kong who pushed this by the name of John Ho. John Ho was a radiotherapist, and he ran the Radiotherapy Institute in Hong Kong. He was a very interesting man, and a big man. I remember going on a picnic with John Ho. Well, a picnic with John Ho is he gets his boat out and you go down Hong Kong harbor and have all these Chinese things as you go. They were wonderful times.

Baker: Yes. It sounds good.

Depue: But John Ho was very familiar with the ethnic problems of the Chinese. The NPC was not uniformly distributed through the Chinese. It was at a much higher incidence in what's called the "boat people," who live on the water. And we didn't quite know what that meant, but we knew enough about EBV now that there had to be some cofactor here, and what was it? So, John Ho came up, due to his knowledge of the Chinese and the boat people--and he being Chinese too--and started looking at what they did to babies, because that's the time they got the EBV initially, and so that's the time to look for a cofactor, as in Burkitt's lymphoma, even though they don't get NPC until they're in their twenties. So, John Ho finally came up with a candidate food that the Chinese routinely feed as the first solid food to babies, especially the boat people, the Cantonese.

Baker: What kind of food?

Depue: Well, I was going to tell you what the food is. It is a kind of fermented fish where you age the fish--it's not smoked--and it's aged until it gets very soft. It's salted. It's salted, fermented fish. And the weaning period in the boat people is where mama takes a piece

of salted fermented fish, chews it up--there goes the EBV--and then feeds it to the baby.

Well, John was able, in connection with some of the people, I think it was in New York-- Who's the guy that runs the Cancer Institute just north of New York City?

Baker: Ernst Wynder?

Depue: Yes. I think he sent some of the stuff to Wynder's lab. And Wynder's lab found that this fish was loaded with nitrosamines.

Baker: John Weissberger, then, was his Scientific Director, who was interested in this area.

Depue: Right. And so Wynder--I'm pretty sure it was Wynder; other people have repeated it, so I'm not absolutely sure of this but--

Baker: I think he and Weissberger are the authors on this first paper.

Depue: Right. Okay. You're right. And so they found this stuff was loaded with nitrosamines, and here they were feeding little infants EBV along with nitrosamines at the same point--EBV from the saliva of the mothers--and so this kind of led to a second cancer. Now it still isn't known--I must caution--whether it's the EBV infection with the thing, or whether the nitrosamines actually initiate the cancer and the EBV acts, in this case, as a cofactor. And so we can't put who is on top here. We still don't know, to my knowledge.

Baker: That's what I thought. Yes.

Depue: But it's still a fascinating situation. So, I got to go, several times, to Hong Kong and Singapore. So, they had sampling projects going in both Hong Kong and Singapore related to NPC. And there was another radiotherapy institute down there. But I think they referred most of the cases back to Hong Kong, even from Singapore, because his radiotherapy institute was very large and was a referral center for all over Southeast Asia. What happened then was that Frank Rauscher became the Division Chief and he wanted me to go with him as his assistant to the Division Office, and I was happy to do so, and I said I thought that would be fine. And besides, they were breaking up Bob

Stevenson's branch about the same time.

Baker: He had just left.

Depue: He had already left. And so I was assigned to the Cancer Virus Office for a little while.

Baker: You became Project Officer on some projects that had been in this area?

Depue: Yes. I was Project Officer on, still, on all the human stuff. But I turned that over, about that time, to somebody else and went to work with Rauscher directly.

Baker: Do you remember who it was?

Depue: It was different people

Baker: Duff? Jim Duff? Or Holdenried?

Depue: Well, Holdenried and Duff kind of picked it up, but that wasn't their specialty either. No. They gave some of it to Paul Levine, because Paul Levine worked for me as an assistant before while he was up in Buffalo. And when he came down here he did some of that then. But I was really interested in this African stuff, and so I was still Project Officer on that when I went with Frank Rauscher to the Division Office. Well, Dr. Moloney decided he didn't want anybody that wasn't part of his Office to be project officer on contracts from his Office, and, as I said to Frank, "Well, that's kind of silly. You know? I'm not going to do anything John doesn't want. I'll talk to him night and day if he wants. You're his boss and you're my boss, so I don't see it is so far removed." But John insisted. So I was displaced as Project Officer on these things, with some sadness for me, because I wasn't in on the final uncorking of the blood samples, although I was there for the collection of most of them. So that was a disappointment. But I was retained as a sort of advisor to Frank Rauscher and he came to me and asked about things of this nature and so I was an advisor to him. And he came in with some other projects. Actually, the first of them started just a little bit before he became Division Director, I think. No, it was after. But I was still on African stuff. It was just in that little interval there. And he was talking to Albert Sabin. And Albert had

finished his work on the polio vaccine very successfully, as everyone knows, and he was now going to, as he said, devote the rest of his scientific career to cancer. And Frank Rauscher came in to me and he says, "Albert has a cancer project. Would you help him?" I said, "Sure." And so Albert had this idea. Now, he was going to take-- Now, I'm missing a name here. Who was it that developed the procedure--it wasn't Moloney and it wasn't Rauscher--developed the procedure for isolating the first rodent sarcoma virus?

Baker: I thought Moloney did, but--

Depue: Well, the person that developed--that did all the work--who worked for Moloney?

Well, let me describe the procedure. And this was done in rodents. You would take an inbred strain of rats or mice--rats is what they started with, I think, as I recall--and you take those, and then he would take sarcomatous tumors that occurred in other rats and you'd, by a certain procedure that-- Maybe it was Moloney. Yes, I guess it was. That Moloney developed.

Baker: Yes. I think Moloney is the one.

Depue: You're right. It was Moloney. It was the Moloney procedure. Yes, of course.

Baker: And you end up with helper viruses as well as--

Depue: Well, as it turned out, you ended up with helper viruses as well as sarcoma viruses.

And you made this extract by a certain procedure that Moloney developed and you applied it to tissue cultures of skin cells taken from biopsies of these inbred rat strains who had been raised in isolation. So, Albert read all this very carefully and said, "Aha, here is what you need. You need inbred animals that haven't been exposed to the virus and you need sarcomas, which you extract in a certain way by exactly Moloney's method. We're going to do this in humans." So he came in and said, "We need--"

Baker: Where did he get the inbred strains?

Depue: Well, that's where the story is. So, we-- The first thing I said to him, having been the

mortician for the Cancer Institute, so to speak, I said, "Yes, I know the places to get sarcomas. We can do that. Roswell Park will help us and Georgetown University can help us and several places." They were all happy to work with Albert. They didn't actually work with him. I kept him at a distance because I knew it wouldn't work otherwise. So I had to find these inbred people who lived in isolated places and weren't exposed to the putative virus. So far unknown. Still unknown. Still, Albert was going to raise the skin biopsies from these people into at least 100 plates--no, 150 plates--per cell strain, or more. I thought it was more. I gave him 100 plates-worth to start, and he probably gained them up by another passage or two. But where do we find the inbred people that haven't been exposed to viruses? Well, there were some places. For instance, I went to Dick Morrow, who helped me. He was a devoted Africa lover and he knew lots of people in places in Africa, so one of the first places we got them from were the Watusis, the people that jump--you know--so we were able to kind of get these biopsies, so to speak, on the first bounce from the Watusis who were thankful to Dick Morrow for what he'd done for them. Now, the Watusis are socially at the bottom in Africa. Nobody will associate with a Watusi who spends his life drinking blood. They raise cattle and drink their blood. That's their diet. Nobody will deal with a Watusi except Dick Morrow did, and he treated them, and they liked him, and so we got biopsies from Watusis. Well, Albert had a place he wanted me to go. He said he wanted me to go to Yucatan. He says, "Now there is a place you can find them." And I said, "The descendants of the original people in Yucatan that built the pyramids and all that," and so I found some social scientist that went down there and I asked him, "Well, what's down there near this?" I said, "How do you get out, because when we get these biopsies we can't take a week to trek out. I've got to get an airline and get this back to a lab." "Well," he says, "There is an airstrip down there." I said, "What's there?" He said, "A lot of wrecked planes." I said, "Thank you." And he says, "You know, these people still

sometimes--the Government denies it, but I've seen it--still sometimes are headhunters. They still carry shrunken heads on their belts." And I said, "I don't know who is going to biopsy whom if I go down there." So I talked Albert out of that one. Well, he came up with another one, which was the island of Saba in the Caribbean. It's in the Netherlands Antilles. It's an island that has no beaches and rises up to an extinct volcano where the town is in the cavity and it's settled by Dutch people and, of course, it's very hard to come and go because-- Well, not in recent years. They have airline service now. So, he knew a doctor who knew a lot of these people down there and he got biopsies. So we had Dutch people from Saba. And then we--

Baker: Oh, you went there too?

Depue: Well no. Actually this doctor that Albert knew went there. I didn't know this fellow personally. But he got those specimens. And then Albert wanted me to go to an island called Palau. Palau is near the Marianas. It's a U.S. Protectorate. So I wanted to see how you could get to Palau and back, because always getting back is the problem. So, well, there is a boat that arrives every six months. So, I said, "Yes, I'll get there on the damned boat, and then how do I get the cultures back?"

And I went to Coast Guard and I asked them, "Could you fly a flying boat in?" "No. We don't land on open Ocean. That place doesn't have a harbor." So, Palau was kaput. So we didn't go to Palau. Well, where else? A friend of mine and Bob Stevenson's by the name of Johnny Dogo--

Baker: That's the Italian surgeon?

Depue: Uh-huh. And he lived in Padua. I had known him, and Bob Stevenson had introduced me, and I actually had a contract with him once to provide stuff.

Baker: Yes. I remember.

Depue: But one of the places that he suggested was up in a town called Sepada in Northern Italy, right north of Padua, almost into Austria. It sits in a valley. Sepada is at an

elevation of about 2,000 feet, surrounded by mountains over 10,000 feet high, and it never had a road until after World War II. Johnny Dogo had been a partisan fighting against the Fascists and the Germans during World War II. He had hid out in this town and the people loved him and would do anything for him, so we decided to get skin biopsies from everybody in Sepada. And his wife, Taina, went up there too, and she went in the church and got all the church records back to the 1700s and got all the birth certificates and figured out everybody's mother and father back to then. And I found a computer program that could put them all together like a whole town family tree going back 150 years.

Baker: Did they have any death certificates related to this?

Depue: Yes, they had some, but the Government kind of snuffed them up and who knows where they were. But they left the baptismal stuff in the church. And that went to establish who belonged to whom. And so I was able to do this program. Not only did we get biopsies, but I could calculate exactly the coefficient of relationship of everybody that we biopsied to other people and get an inbreeding coefficient on each of them quantitatively. A wonderful computer program. I would love to use it some more. It was, however, complicated. But the way you do coefficients of inbreeding is you take a person and you go down his mother's side and his father's side and you come down and see where you can find a common ancestor that is an ancestor of both of them. You find all the common ancestors and then, according to the generation level that you've gone down, you can calculate a quantitative probability that a gene in your subject was inherited for this same common ancestor. And that's what this tells us.

Baker: But an inbred population has quite a different set of data compared to the ordinary population.

Depue: Well, this one did. It's the only one I had that was like that. And so we developed a lot of cell lines from there and they are still somewhere--stored somewhere--and the data

are-- I don't know who has got the data. I've got a copy of the data still.

Baker: Was that ever published?

Depue: Well, there wasn't any-- Oh, yes. The program was published because--

Baker: And also the data?

Depue: No. The data were never published.

Baker: No?

Depue: It didn't have a hypothesis. I mean I could apply--

Baker: Presumably they had different correlations--

Depue: The program was developed by the National Institute of Dental Research in their Epidemiology Branch, and the guy that wrote that was interested in genetics.

Baker: It leads me to ask about the group in North Carolina, because the Dental Institute, I know, had studied an inbred population there.

Depue: Well, I'll talk about where we did that. We didn't go to North Carolina because they didn't want us to. I got this program only from the Dental Institute to run. They wrote it and they let me have a copy of it. And I ran it to do this stuff. So we attached an inbreeding coefficient to every cell line. We could even tell who among the people-- You could take two pairs of our subjects and see if they were related to each other and how closely they all were in some degree. So, that was interesting. And we got those. Where else did we get things? Well, we went down to Chesapeake Bay and out to--I did this myself--out to the island that's off of Crisfield.

Baker: Tilghman Island or Smith Island?

Depue: No, no. Next to Smith.

Baker: I don't remember.

Depue: I'll have to grab my map. Wait a minute.

Baker: Just north of Smith Island?

Depue: South, I think. It's where everybody goes now and it's a summer thing. But anyhow it

was settled by John Smith who was granted a charter on it, and he was the first Englishman there, and the people still speak with an Elizabethan accent.

Baker: Just this past week "Pocahontas" was the number one movie. It was an animated movie. You're right in style here.

Depue: And so we went down there. Well, I did it before the movie, but after the real Pocahontas. And it was the first settlement and it was, by the way, important in our history. The British captured it again in the War of 1812 and used it as a base from which to launch the attack on Washington. So, people live there by the Bay, fishing, crabbing and all that kind of thing. There are no vehicles on the island.

Baker: Well, Smith Island itself is that way.

Depue: Smith Island is the same way, but it has an even purer--

Baker: The name of the island is Tangier Island.

Depue: Yes. And the people there suffer from a genetic disease of high cholesterolemia. And when we went down there to draw some of the blood to go with some of these things, I couldn't believe it. They'd come out looking like pink milk. How some of these people can exist? Well, a lot of them don't live long. And they were studied by the Heart Institute for this. And so that's how I got there. I went to the Heart Institute and asked if we could go there, and they introduced me to the nurse who works on the island. There is no doctor there. And so we went down and did punch biopsies and did some blood samples and stuff and got more lines from there. And where else did we go? Well--

Baker: As far as you know, these cell lines are still available frozen?

Depue: As far as I know. They were.

Baker: And you can tie it to the data?

Depue: There wasn't any data associated with them except where they were from and the age and sex of the donor.

Baker: But they were in a population of inbreeding.

Depue: Yes.

Baker: Did they grow any differently than non-inbred cell lines?

Depue: Well, Albert claimed he could see the difference.

Baker: Really?

Depue: He claimed he could.

Baker: Well, maybe he could.

Depue: He said he always knew the Watusis when he saw them.

Baker: Oh, really?

Depue: So--

Baker: Well, he didn't have a double-blind test of that, I guess?

Depue: No. Finally, one of the other interesting places we got cell lines from was Hawaii. One of the islands in the Hawaii chain, called Niihau, is 100 percent owned by the Robinson family, who are descendants of the missionaries who snatched it from the locals. And on there, they have had for years, pure bred polynesians, living there who have always lived there through history and who now work on the ranch which the Robinsons developed. Well, the Robinsons won't let anybody else on the island and they won't let any of the polynesians on there off, or at least they won't let them back if they ever leave. So this was a pretty pure inbreeding situation, it seemed to me. And I tried to go out and, of course, I was met by guns trying to get there. "You don't land here."

Baker: You didn't try talking to them before you went?

Depue: I tried. So, I went to the guy who was the Health Commissioner for the State of Hawaii, and I said-- Well, I'd talked to him before this. And he said, "No, they won't let you on. They won't even do anything with this project with you, so you'd better forget it." I said, "Well, do they ever get off for any reason and get back?" He said, "The women who want to deliver in a hospital when they have a baby are allowed to go over to

Kauai, and there is an American doctor there who works in the hospital and delivers the baby." So I went to see this doctor in Kauai, and I said, "Well, when you deliver these babies, do you ever circumcise the males?" He says, "Well, yes, when requested." And he says, "About half the time." I say, "Fine." I said, "Would you mind giving me the foreskins?" And he says, "Sure. For Albert? Absolutely." So I made a little collection kit with tissue culture fluid and saline. He could wash the foreskin and dice it up fine and put it in the tissue culture tube and air freight it to San Francisco to the Naval Tissue Culture lab where they grew them up. They grew all of our stuff up for this project, by the way.

Baker: It took a little coordination too?

Depue: It took a little coordination. I had to make this kit, all made up.

Baker: You had to get the people--

Depue: I used it in other places too.

Baker: --at the Navy, though, to also do this?

Depue: Also do this. Yes.

Baker: You must have been convincing, because it didn't really have much direct bearing on defense.

Depue: Well, the Navy Tissue Culture Lab was on-- They keep threatening to shut it down. The people there were happy to do anything that had a name connected with it like Albert's. It was in San Francisco, right down there on the bay. And they were good. And so we got some cell cultures from them. And that was mainly the most of them that we got.

Baker: But you got foreskins from some other places too, didn't you?

Depue: On occasion, but not regularly.

Baker: That was the best place, huh?

Depue: We used foreskins when it seemed that there was an advantage. We preferred skin

biopsies, but foreskins would do when you couldn't get skin biopsies. And we did some foreskins from Africa too on occasion, but not as a systematic way like this. Which leads to the funny story about Albert. The last time I saw him alive was at the Library of Medicine, and he was there and had given a little talk. And I came up afterwards and was talking to him, and we were conversing. Albert appreciated what I did. I'm proud to say I'm one of the few people that would put down Albert on a resumé for a recommendation. Not many people wanted to risk that one.

Baker: I always got along with him all right. I'd met him when I was with Dr. Smadel before I came back to the Cancer Institute.

Depue: Yes. You could get along with him if you didn't work with him.

Baker: Obviously he was difficult to work with directly.

Depue: Yes. He'd call me up every day on Wednesday and he says, "I need 40 cell cultures tomorrow." I said, "They'll be there, Dr. Sabin. They're ready." He'd say, "What time will they get here?" I said, "Well, they're going out, so and so, and so they should arrive in the afternoon." "What hour?" Oops. I said, "I don't know." So, I would learn to make it up, say, and weather the phone call back. I mean, I was working in Bethesda and he was working in Cincinnati, and that made it a lot easier.

Baker: But that's partly why he got so many things accomplished. He was a driver.

Depue: Oh, absolutely. Anyhow, I was talking to him after this meeting and another guy came up to me who had apparently known Albert some too, but I didn't know him, and he said to me he saw that Albert and I were conversing and he said, "Well, how did you ever get to know Albert?" "Oh," I said, "A long time ago. We've known each other for a long time." I said, "I was his mail."

Baker: Did the guy understand what you meant?

Depue: Albert did. He fell on the floor. Well, anyhow, then Albert went to Israel and he became Head of the Weizman Institute, and he left the project behind in Cincinnati

under a man called Julio Taro. He was an Italian. And he had been doing a lot of the tissue culture work and all the stuff on this project down in Cincinnati, and he continued when Albert went to Israel. And Albert would see me every time he came back to this country, and then he'd go to Cincinnati and see how the project was doing and how Taro was doing. And then he came once and talked to Frank Rauscher--I think it was Frank--and said, "Oh, we've got a great research idea for you." He said, "We'll make an appointment to talk about them." So he comes back from Israel, and he brings half the senior people from the Weizman Institute. Well, we were sitting around the big table up in Building 31, and Albert is at the head, and all these almost Nobel Prizewinners--I think there was really one there too--sitting around and he was going to have this great big cooperative contract--So, Albert would point to one of them, and the man would stand up. He was a very prominent scientist from Weizman. I mean, that whole crew over there was impeccable. And he'd stand up and describe the project, the sub-project, that he was going to do on this contract and so on. Albert would be continually interrupting and say, "You didn't tell it right." Well, that was a wonderful experience. The contract never got started because eventually Albert left Weizman. When he came there, they assigned a little fellow to stand at his side, and whenever anybody spoke to him, he says, "We dealt over there in English all the time," but this guy would repeat it in his ear in Hebrew because Albert couldn't speak Hebrew. He says, "This is worse than being in Hebrew School when I was a kid." with this little fellow. He says, "I can't think." And so Albert wasn't a big hit at the Weizman, and eventually he left. And about the time before he left Taro had come up with what he claimed were foci from the experiments. So, Albert looked at the pictures and all of this stuff, and they published "Foci: A Question of a Human Sarcoma Virus." Well, Albert came back and he went to Georgetown, but up at Frederick they had this big lab which was supposed to be where people could come to and repeat important work and show how it works, so Albert went

up there and was going to repeat all this stuff that Taro did. Taro and Albert had published this thing in *The Journal of the National Academy of Sciences*. Albert went to Frederick every day for months. He couldn't repeat the work. So he published a retraction. And he said to me, "It's the only retraction I've ever published in my life." So, Taro was banished to the bowels of Naples, I think never to be seen again. And that was about the end of the project. Except the cell cultures and a lot of the extracts were still in a freezer somewhere. I think one of Bob Huebner's people had access to them. His contractor site had them stored. I don't know whether they're still there, but that's where they were, and that was the end of the Sabin Project, which links me to Ft. Detrick again. I said we would return to Ft. Detrick?

Baker: Yes.

Depue: Well, we're returning. Well, Ft. Detrick, I had lived there and I was married there and everything. I had worked there several years. And I was working for Frank. Frank Rauscher came in to me one day and he said to me, he said, "You used to work at Ft. Detrick, didn't you?" as, by the way, so did several of Bob Stevenson's staff.

Baker: Uh-huh. I know Holdenried and--

Depue: Holdenried and one other and me. I said, "Yes, Frank." "Well," he says, "You go up there and find out what we can do with it." I said, "What? "Just go!" "When?" He says, "Now!" So, I grabbed some colored pencils and stuff and I said, "We have to find out what we can do with it?" He says, "Go see the Commanding Officer. He'll give you the stuff." I said, "All right." So I went up and I went to the Commanding Officer. He gave me a map of the base with all the buildings marked on it and a master key to all the buildings, which were being decontaminated by putting paraformaldehyde on hot plates. So the interior of the whole building was nothing but a film of formaldehyde, through which I walked, looking at the laboratories and saying, "Well, this one could be an animal quarter. This one is the virus lab, or was, and this one so and so, and so and

so." And I colored this little map with different colors for different purposes and brought it back, except the tower, the 14 story tower, which was the source of anthrax and has been sealed for years. I didn't go in there. I just colored it red. "Don't accept this building. Make the Army keep it." So I gave this crayon drawing, or colored pencil drawing, to Frank Rauscher. He says, "That's fine." And I say, "I've got to go back and redo this. I mean after two hours I couldn't see any more." And he says, "No. That's all right." Well, ten days later Richard Nixon--

Baker: You found out why you had to do all that?

Depue: --went up and gave a speech about beating swords into ploughshares.

Baker: Yes. I briefed him on the Cancer Program right before that with Rauscher and Zubrod.

Depue: Oh, did you?

Baker: Oh, yes.

Depue: Well, apparently Nixon waved this crayon drawing and says, "And we have a plan."

Baker: And that was the plan?

Depue: And I said, "Frank didn't. He didn't send that two hour job with the tears on it to the White House."

Baker: Well, it's the first step in the plan anyway.

Depue: Yes. It was a first step. So, the next thing was, well the Cancer Institute was going to take it over, except for some of the vacant land which the Army was going to keep. So, if you go up there now, what you see is a lot of old buildings which is the Cancer Institute and a lot of new buildings which is the Army.

Baker: Well, we needed more space in those days, and that was one way to get some.

Depue: So, Frank came back and said, "Okay, now we've got to develop a Government-owned, contractor-operated (GOCO) contract for that place." He says, "Come up with projects." I said, "What?" He said, "You get the help of anybody you want, but come up with projects." I said, "Oh, my God." And so Carl Fretts and I worked together on it

and we, together, managed to get these ideas for projects. We went begging. What could we do? Well, as it turned out, eventually what it was going to be was all mostly service jobs, making viruses, cell lines, raising animals, and we eventually got about 13 projects. Well, Project 13 was the open-end. It said, "It was the Advanced Systems Laboratory which would be manned by the contractor with technicians so anybody from anywhere with an important result could come in and demonstrate it to other people and/or repeat it."

Baker: Now, who thought of that?

Depue: Who thought of that wording? I'm not proud.

Baker: Well, I don't know.

Depue: Well, I never knew Albert was going to end up in it. So, we let out the RFP finally with the 13 projects. But before we did, Frank was worried--

Baker: That last one, the 13th, was probably the most important one of all. I mean it could be.

Depue: I won't comment.

Baker: No. I'm serious. That allows you to get research into it and not just service. And look at how they've developed that.

Depue: It swallowed the whole project. Exactly. The whole thing became Project 13, so to speak.

Baker: Well, that was a higher level of planning.

Depue: Well anyhow, we hadn't gotten quite that far yet, and Frank was terribly afraid that nobody that knew how to do GOCO contract stuff would bid on this thing. And we didn't put the RFP out yet. We were still working on it. So we put out the RFP and we had about 14 or 15 answers, bids, and unfortunately Union Carbide didn't bid, which made Bob Stevenson mad, so he left. And after a little while--

Baker: He left Union Carbide?

Depue: He left Union Carbide, yes, where he was an Assistant Vice President or something.

Baker: Because he had been promised that they were going to go into the biological side more deeply than they were in, but that got overruled.

Depue: Yes, apparently.

Baker: By the President of the Company, I think.

Depue: Yes. Apparently it passed the Executive Vice President--

Baker: It had apparently.

Depue: --and then the President killed it. Well, in contract revisions after their first submissions we were going through them and we gave them time to revise them, and lo and behold Bionetics' proposal comes in with Bob Stevenson as head of it. Well, the committee liked that. I kept saying, "Well, you can't put that much weight on it." Carl Fretts and I kind of said, "Let's not play that up too much, one individual--"

Baker: But the committee members felt that that experience almost made him unique?

Depue: The experience was unique. But I said, "That's not enough by itself. You've got to examine the proposals and find out, in the work, whether they have brought to it all together effectively," which they finally did. But there was a company from California who bid also whose president was a good friend of Nixon, and they had talked apparently to some of the White House staff and said, "Well, we think we're going to get this thing." So, the White House staff called us up and said, "Hey, they are going to get it? Aren't they?" And I said, "No, we haven't picked anybody." Carl Fretts talked to them. I made Carl Fretts do the front work on that one. And so Carl told them, he says, "Well now, you tell them out there if they keep doing this we're going to disqualify them," and we didn't hear any more.

Baker: And this was at a level of about \$3.5 million we're talking about here?

Depue: Yes.

Baker: Because it was a multidisciplined many-faceted kind of--

Depue: Yes. It was the first operating contract like Oak Ridge, a la Oak Ridge, or something

like that, that Cancer ever did.

Baker: Because we were trying to get more program production for less administrative involvement, and so that was part of the idea of packaging it in a larger amount than we were used to.

Depue: We didn't have the staff to run that.

Baker: Yes, so we let a lot of the detailed management then be handled by the contractor, which wasn't anything new for some parts of the Government.

Depue: Yes. We didn't have the staff to manage that real estate up there and all the things that went with it.

Baker: So this was not new in some other agencies, like Defense, but it was new for NIH.

Depue: Or the Atomic Energy Commission. It runs everything that way. They'd even have their own people up there with it and make a mixture, and it wasn't too long until that pattern started with the Cancer Institute too. So that kind of brings Ft. Detrick back to it, in my life. My life is a big circle involving Ft. Detrick.

Baker: Well, Holdenried had a similar linkage with it, of course.

Depue: Yes, he did. But he didn't have to do the contract.

Baker: That was a different world. Yes. I don't think that would have been his cup of tea.

Depue: I asked him about it. He said, "Don't come near me!"

Baker: Very good.

Depue: Let's see, who else was involved here?

Baker: Are you ready to turn to the questions?

Depue: Just a moment.

Baker: You've already answered some of them, but this is a good account of a lot of things--

Depue: Well, I can do it better this way than answering the questions.

Baker: Well, fine. Go right ahead. You're doing fine.

Depue: So I was looking for-- Oh, who is the other guy? Oh, Duff. Jim Duff. Jim Duff

worked for Bob when he was at Ft. Detrick too.

Baker: I've interviewed both of them.

Depue: All right. Well, a funny thing--I guess it wouldn't be out of line--but when I was up at Ft. Detrick, my future wife lived in a barracks there and I lived in the Officer's Quarters, and Jim Duff lived in the Officers' Quarters too, near me, and there was another gal that lived in the female quarters there where my wife lived, and she was a good friend of mine and a friend of Jim Duff, and her name was Margaret Huff. And she's still a friend. I get letters from her every Christmas still. But we always have a joke with Jim about how he backed out after this date I fixed him up with once, and so there can't be a Margaret Huff-Duff.

Baker: All right. That won't hurt anything on the record.

Depue: But we still talk about Margaret Huff-Duff.

Baker: Margaret Huff-Duff. Yes.

Depue: All right. Well, that's about all. I think I've about gone through all the stories, I guess. Except, well, I could do a little more, on what I did after this. Okay?

Baker: Yes.

Depue: Well, Greg O'Conner became Division Chief. Frank Rauscher became the Institute Chief, and he said, "Do you want to come and work for me as my assistant in the front office?" And I says, "Uh-oh, I don't want to get that far away from the work. It's bad enough right at the Division Office in that sense," so I stayed and I remained as Assistant to the Division Chief in Cause and Prevention under Greg O'Conner. Well, Jim Peters was next as Division Chief. Right? And I was his. And we got together and I-- What I did--

Baker: Yes. I guess Greg didn't stay very long.

Depue: Well, no. Greg was after Jim.

Baker: Pardon?

Depue: Greg was after.

Baker: After Peters?

Depue: Yes. Wasn't he?

Baker: I think so. I was in Europe in those days.

Depue: No. He was after. So, Peters was the next. I worked for him. We worked together very well. Peters was a very even-handed guy, and he treated other people equally. He wasn't a research scientist himself, and so he was, in a way, a better administrator. What I did for him was every contract action that came up to his office, and that was, on most, for the last signature, would come across my desk. I'd read it and I'd read the reviews in detail and then I'd put a short recommendation to him on whether it sounded right, or were there holes in it, or something like that, and I'd send it to him. And he'd sign it mostly according to my advice, or call the people up and say, "Hey, here is a question. What about this?" And we worked very well that way. I liked Jim Peters a lot. I got to know the Division programs pretty well by then. I remember one day-- Well, let me not go over this yet. Frank Rauscher had kind of brought up Jim Peters to replace him when Frank was in there as Institute Director. Well, the subsequent Institute Director didn't think Peters was scientifically heavyweight enough and he was asked to leave. But they got him a job on the faculty of the medical school in Bethesda, the Armed Forces Medical School, which he liked and was happy to take. So then I worked for the next Division Director who was Greg O'Conner. He was an excellent pathologist. We got along very well. Greg O'Conner had a very big interest in Burkitt's lymphoma, in the pathology of it, as of all lymphomas.

Baker: And always had. Yes.

Depue: Always had. And if I went to a Burkitt's meeting, Greg was there. He was always there. And he acted as the pathology checker on our West Nile Project. And so we worked close together and I was happy to see Greg and work for him. Under Jim Peters

I had an opportunity to go to the epidemiology course for one summer up at Minnesota, and so I went through all that, and I actually took it for credit and everything. I took the whole course. I took an extra course. I took a very heavy load up there one summer. And I passed all that stuff. And I went in. This was Jim that sent me. And he says, "Yes, I've attended that thing, so," he says, "you go." And I said, "Well they are very good teachers, including some of our people," and so I did that and I came back to NCI. Well, what had happened in the meantime is that Huebner had become very impressed with Brian Henderson. He'd met him in Africa. And so he induced Brian Henderson to go to USC because there were a lot of Huebner's collaborators who did cancer virus research there. He had great respect for Brian as an epidemiologist, so he induced him to come to USC where he started the Department of Family Medicine and Epidemiology. And Brian became head of it. And then Brian helped the University because they were submitting a proposal to become a Comprehensive Cancer Center, and Brian had good knowledge and wrote a lot of the stuff that they came in with, and they won it, to become, I believe, first or second. USC and UCLA came in right close to each other. Brian then got Malcolm Pike to come and be there. I knew them both from Africa.

Baker: Both are leaders in the field today.

Depue: Yes. Both are leaders in the field today. And, as a matter of fact, I understand that Brian Henderson now has replaced Salk who just died. I'm not sure of that, but I've--

Baker: Well I know he's there.

Depue: He's there.

Baker: :Of course, Salk wasn't the head of it for some time.

Depue: No. I know. He was Emeritus, or something. And Brian kind of was some kind of head of it.

Baker: I think so.

Depue: But I couldn't mention Salk, you know, if Albert was still around.

Baker: I never understood the antagonisms.

Depue: You couldn't. That would get a "Don't say that name."

Baker: I don't know what brought that on, but--

Depue: Because people, the National Foundation and Basil O'Connor were giving Salk the credit for eradicating polio.

Baker: Of course I know all that.

Depue: And that was wrong, and Albert said it was wrong. He said, "It was my vaccine that did that."

Baker: Well, there is room for honoring both of them. Fortunately history will honor them.

Depue: I didn't want to get in the middle of that.

Baker: Of course not.

Depue: So, I went to Greg O'Conner and said, "Greg, I could work with Brian Henderson and Malcolm Pike, and Malcolm Pike especially. I'd like to have a sabbatical to go there and really do some epidemiology so I could be one." And he said, "Great!" That's the way he was. And I thought I was going to have to talk him into it. And he says, "Great! You should go." And I got two years out at USC. And I worked on a project on the epidemiology of testicular cancer. And the idea was to interview the testis cancer patients and their mothers to try to establish the possible perinatal causes of testicular cancer, you see, because it peaks at age 30 and the incidence goes down from there. It's one of the few cancers that do. And all the other ones that do the same are thought to be perinatally caused.

Baker: At least a maternal influence.

Depue: Exactly. And so that's what I did. And I ran this thing which--

Baker: That's when I sort of lost track of you.

Depue: Yes. I was out there two years. I returned in '80 and I went out in '78.

Baker: Well, see, I was in Europe most of that time.

Depue: And I worked on this project with Malcolm and Brian and finally came back and, by that time Greg O'Conner had left and I had a new boss I had never met, who was very nice, and he said, "Well, why don't you just go down--"

Baker: Was this Adamson?

Depue: Yes. And he said, "Why don't you go down and work in Joe Fraumeni's office, and then you can finish up doing this project, which I was in stages of analyzing--you know, the interviews were all done and everything." And he says, "You can do that and you can help Joe wherever he needs it."

Well, I got down there and Joe wouldn't talk to me. It all went back to the point with Brian Henderson, who was on the National Advisory Cancer Board. He was "the" epidemiologist on the Board and was quite pointed at Joe sometimes, and Joe perhaps thought that I was a spy or something, I guess. I don't know. Because when I was out there I kept hearing all the time from Brian, "Joe just goes and does things and he doesn't make them right." And he said these things at the Cancer Board meetings. And so there was no love lost between Brian and Joe. And when I ended up in Joe's office, just directly from Brian, it was very difficult.

I had an office there. I had no secretary, I had no help, and nobody was allowed to talk to me much. A few of the people I knew from before would. So, eventually Fraumeni told Adamson to get me out of there. So I was assigned a lone office over in the Landow Building where I could sit and do my stuff at least for a while to finish up these projects. Well, during that one year period period I published four epidemiology studies. We got into doing lab work with epidemiology which was supposedly the big thing to do, because Brian was in favor of that and he knew a good endocrinologist; so, we went from the study of testicular cancer to studies involving lab measurements of hormones. In the earlier studies we found some evidence that hormonal things in the mom might

be involved with testicular cancer in the son--but we didn't have any direct measures, with just indirect epidemiology things--like the mothers had a higher risk if they'd had severe nausea and vomiting in pregnancy. That's usually a marker for high free estrogen. So, when I was out there, there was an awful lot of endocrinology that I hadn't looked at for a while. When I came back we used the Perinatal Project, and we used the correlate of testis cancer, that is undescended testes, and we got the sera from undescended testes cases and ran them through the tests with the endocrinologists in California and found that, yes, indeed, the mothers of children who had undescended testes had higher free estrogen levels--not total, but only free--so they tended to have lower levels of estrogen binding globulin, which fit. And about that time Malcolm was asked to go back and replace Richard Doll in Oxford, and he was so excited about this undescended testes finding, because it was a thing you could put your hand on easier than the testicular cancer, and he devoted a big project back in Oxford to it and went on with it. And he asked me to come over there and consult once, which I did. But what happened in Oxford was that Malcolm's wife, while she was out in California, in L.A., always wanted to be a nurse, and she went to school while they were there and she got a B.S. in nursing and then, shortly after that, he went to Oxford. They all went. And the British wouldn't hire his wife in a hospital. They said, "You were too old when you got your degree. It doesn't count." And she was so unhappy. And Malcolm also had to take a big pay cut to get the job. And he finally said, "Enough is enough," and quit. He went back to USC and then became Head of the Department when Brian was, by then Head of the Cancer Research Center. But so, anyhow, I collaborated with them out there for about a year or more after I came back and published these four papers having to do mostly with the undescended testes and serologic studies related thereto. And we also found another thing, which I'd found some evidence of in the testis cancer study, namely that smoking might link to it. And so we looked at the undescended

testes in relation to smoking, and we found, yes, it was linked there too and the linkage was a negative correlation. It was a protective factor. The reason is that smoking reduces estrogen levels in women, which was known, and so that was one of the things I thought the data was showing: the lower estrogen levels in the mothers of the sons with undescended testes and so on. So I think I did well, and Adamson never leaned on me for anything. He let me do this full-time for the last year or so. But, unfortunately, it was in California that my wife developed lung cancer. Now, we'd both quit smoking 8 years before that. But she developed the kind that we don't know whether it is smoking related. It's called alveolar cell. And she was operated on by a guy who used to be in the Surgical Branch at NCI who was then at UCLA. So I went to him and said, "Hey, we need some surgery here," and so they did it and they did a fine job of it, as far as I know. But after we got back here--that was four years later--she got a recurrence and then this guy at Navy operated on her--you know--the one they sent to prison. He did a completion pneumonectomy on her and we thought it would be all right, but then in another year and a half it was in the other lung, so that was the end of the line on that. She had her second recurrence at the end of '85, and so I retired then to be with her as much as I could, and she died in '86. And after that, what did I do? I got to know some lawyers, and one of them, on my wife's case, who was looking at it and said, "Well, you know, she got more bleeding than she ever should have." This surgeon was pushing and pulling too hard and he ripped something, the one at the Naval Hospital. Because this lawyer had been a chest surgeon and he got tension tremor and had to quit surgery, he went back to school and became a lawyer, whereupon he started suing all the guys he used to work for. He was head of the department at the medical school in Wisconsin.

Baker: Where?

Depue: Wisconsin. The University of Wisconsin Medical School.

Baker: Well, there are two. One is in Milwaukee and one is in--

Depue: He was at the Milwaukee one.

Baker: Yes. That's a different campus from Madison.

Depue: So, from him I got in touch with some lawyers, which I didn't pursue really. I said, "Well, the Navy has already sent this guy to Leavenworth." But I got to know some lawyers and through that I got to know them and I became, in Mississippi, the Plaintiff's Science Advisor on a tobacco trial down there. Oh, that was wild.

Baker: Well, it's still going on without you, I guess?

Depue: Well, not so much.

Baker: Well, Mississippi is suing the tobacco industry currently.

Depue: Well the state is. Yes. But, I mean, they're not doing product defect trials because our case was about a guy that died of lung cancer and the suit against the tobacco company was for product characteristics, and it was the first or second big trial. They had this little rural town in Mississippi. They didn't even have a hotel. And I was put up because one of the lawyers was local and he got the town behind him; so, I stayed in peoples' houses and we were fed by the mother of one of the lawyers who gave us all our food. And so I lived in the town. But the defense couldn't. There was no place to stay. They had to live 40 miles away and commute. And it was wild though. The tobacco companies had put a detective on every Van Arman in the County and found out their life history, every one of them. So, when we came to the "show and tell," they never asked a question of a potential juror. They just said, "Oh, I see, you were born so-and-so, and you're this old, and you lived here in this house and that house, and you married so-and-so and had these children and so on and worked so much at this place and that place," and they said, "You're all right." We claimed that was intimidation. Well, the Judge wouldn't hear of it.

Baker: It's questionable.

Depue: It was. And, well, what they did next was, they started sending a driver around every

morning and bringing the jurors to the court. Now, the Judge did think that was out of line.

Baker: Yes, that's a little bit out of line.

Depue: But he wouldn't punish them for it. He said, "Just stop it." Then they broke into things. They broke into my car. They broke the window. I knew it was them because they didn't steal the money that I'd left there; they just went through my brief case, because they were trying to find out what I was. Much to my displeasure, our lawyers never identified me as being on the team. I sat outside the bar, therefore, and I just talked with them occasionally over the bar. And the other side came down and said, "Who is that big fellow in the front row?" Well, they told him, unfortunately for me, "Oh, he used to be the Surgeon General." (Laughter.)

Baker: Oh, boy. You got elevated.

Depue: I got elevated. I said, "You didn't. Come on." Two days later my car was rifled. I said, "You come over. I'm going to go tell them who I am." It didn't matter by that time. So, we finally won the case, got a ruling in the defendant's favor, and got one dollar, which they never paid. I said, "I want my ten cents."

Baker: You should have sued them for it.

Depue: I should have sued them for it. Well, that was a wild time. I tried to get them to go into the addiction thing. We had one of the government's biggest experts on that testifying for us on some other issues. I said, "You've got to hit the addiction, because they're going to argue that, well he knew and he should have quit." They didn't want to do addiction. For some reason they were deathly afraid of raising that issue. And I said, "You've got the best expert in the country--"

Baker: It's hard to prove, I guess.

Depue: No. This guy had done experiments for it. He worked for the--

Baker: The smoking lobby?

Depue: No. He worked for the addiction people.

Baker: The Alcohol, Drug Abuse and Mental Health Administration?

Depue: Yes, they've got their own research-- I think it's been combined since, but it was separate then and they had their own research institute. And he had addicted all kinds of animals, including monkeys, to cigarettes, to nicotine, and then done psychological stuff with them on how strong the withdrawal was, and then the choice. He offered them sex or food or nicotine, but not any two of them. The monkeys took the nicotine every time. He said, "We don't get addiction indication that strong with morphine."

Baker: But, of course, monkeys are not humans.

Depue: Well, I said, this guy can testify to powerful stuff, but they wouldn't do it.

Baker: I wonder why.

Depue: They said, "Oh, well, it's just a bad habit and a connection with smoking and this was just statistical. It doesn't have anything to do with cause. You can't prove cause unless you know the mechanism." That's when I made my big thing. Did I tell you this one?

Baker: No.

Depue: So I said, "In cross examination, boy, I've got the cross for you on this one, on this guy." They had somebody from the Tobacco Institute I think.

Baker: You mean the Tobacco Institute people said that it's only statistical?

Depue: It's only statistical and there is no causal proof.

Baker: And so what did your lawyer friends that were on your side saying?

Depue: That's when I went to them. They presented this on the Defense side. You know? And I said, "Our side hasn't cross examined this guy on it." So they said their point was it's only statistical and you can't prove cause unless you know the mechanism.

Baker: But this is the tobacco company's--

Depue: Yes.

Baker: Yes. That's an old one. Yes.

Depue: Yes. That's what he was testifying as. He was a scientist that worked for the Tobacco Institute. And he said, "So you can't impugn cause from that kind of work. Unless you know the mechanism it's just an association." And I said, "We've got him." And so they did the cross like this. I said, "How long, sir, to your knowledge has it been since we knew the complete mechanism of fetal development in birth from the sperm to the egg to the baby?" "Oh, well, that probably wasn't worked out until the turn of the century."

Baker: It's still not worked out at certain levels.

Depue: Oh well, in essence. And I said, "Yes, sir. We could agree with that." And I said, "When did people first make a causal assumption between intercourse and pregnancy? At the turn of the century?" And the jury went hoohaw. They just went "Ahh." Oh, I don't know.

Baker: And he only got a dollar even with all that, huh?

Depue: And so that was my big thing. But anyhow, if you would like, I will give you a couple of reprints. You don't have to read them, but at least you can see the subject of what I did. But why Joe Fraumeni wouldn't do anything with me, I guess I assume it was just because I had worked with Brian Henderson. I remember Jim Peters coming in to me and saying, "Marvin Schneiderman is leaving." Well, Marvin and I worked closely and I loved Marvin, and he gave me lots of good advice, and Peters said, "We've got to replace Marvin." And he said, "How about Joe Fraumeni?" He says, "What do you think of that?" And I said, "I think it's a good pick." And I had helped Joe because I had been the NCI representative on the Transplantation Registry and I saw epidemiology possibilities there and I went to Joe and I said, "Hey, Joe, they've got these records that show good prospectively done stuff and I'm on their Board." And I said, "You've got to go talk to them and get a hold of these records." And that was one of his big things. It showed cancer in kidney transplant recipients. And I got him into that one. And so I

said to Jim, I said, "Yes, sure. I will 100 percent approve of that." And so he went ahead and appointed him Head of Epidemiology, which jumped him over Bob Miller, because Joe had come here originally working under Bob Miller, and he was just a young pediatrician.

Baker: This was Peters making the decision?

Depue: Peters.

Baker: Yes. Well, it had to be approved, but I mean--

Depue: And so I said, "Yes." I said, "Joe is good." He came here and he worked for Bob Miller for years, under him, in Bob's Branch. He was doing all the epidemiology, being the smart doctor. When he came I don't know if he had any epidemiology experience; he was just a good pediatrician.

Baker: Well, he was the Senior Resident in Medicine at Harvard.

Depue: Yes, but he wasn't an epidemiologist, per se. So Bob recruited him as a top medical guy, brought him in under him, and--

Baker: And he was smart. I mean he really knew his medicine.

Depue: Well, that was Bob Miller's theory.

Baker: Well, it turned out well.

Depue: Yes. But it wasn't long after that, that we started getting things from Joe, "Well, Bob this and Bob that, and we've got to do something." And Bob Miller's Branch started slowly to disappear.

Baker: Well, Bob Miller, of course, didn't want to run anything very big.

Depue: No. He never did. But he did want something. And he finally came to us and said, "Look, I can't do anything anymore. There are no people." And Joe wouldn't do it. He wouldn't assign him resources.

Baker: They had a different approach to it.

Depue: I know. It was, under Bob Miller, you get a smart doctor, you put him out there; he

looks at things and figures it out and you don't have to be a statistician, you don't have to be all that; you can learn that later.

Baker: It depends on what you're doing. Yes. So I thought well of both of them in other words. And still do.

Depue: Well, I did too. And I felt so sorry about Bob. And when he finally retired he was really unhappy.

Baker: Well, I interviewed him on this series.

Depue: Did you? I hope I'm telling the truth.

Baker: Well, he didn't seem too unhappy about things.

Depue: Well, I don't think he was unhappy he left, but his last year or so here wasn't happy, I don't think, at least that's the way I felt.

Baker: Well, he's still in the Cancer Institute you know?

Depue: Yes. But he's not a Branch chief in the sense anymore.

Baker: Well, he is, by title, but he's about the only one in it, I think.

Depue: He's the only one there.

Baker: Well, not quite, but I guess it's almost that way.

Depue: But, you know, this is a guy that nurtured Joe and made him what he was, in essence, and then Joe turned on him.

Baker: Well, I'm sorry to hear that.

Depue: I'm sorry to hear it too, but I was sorry to witness it. I thought it was sad.

Baker: Okay. How about turning to the questions?

Depue: Oh, my God, the questions. Yes.

Baker: And it looks like you've got a--

Depue: Well, this is a lot harder than what I've done so far.

Baker: Well, yes. And it's a matter of impression in some cases.

Depue: You see, the problem is that I'm not a viral oncologist, in essence, and that's kind of a

very specialized field, and judging people that are makes me nervous.

Baker: Well, sure, I understand, and, you know, some of these questions may not exactly fit.

Depue: Well, I know. And some of them do. And I think from what I've said so far contains what answers I can give, and all I just have to do is highlight back again.

Baker: Well, let me lead you a little bit. I consider that there are three main periods of cancer virology aspects. The first period was before Ludwig Gross's findings when nobody thought viruses had anything to do with cancer. And Bryan and Burmester and Beard, maybe Shope, kept the flame alive, so to speak, when nobody thought there was any connection. And with Gross's findings--

Depue: I loved Bryan. I was his assistant-- That's another thing I did. I was his Assistant Segment Chief for a while, but we didn't get much going. It was awful hard with Bryan to get that kind of stuff going.

Baker: Yes. He didn't take to the administrative aspects. And Rauscher did, of course, and so we appointed him to run the Special Virus Leukemia Program.

Depue: And I was trying to help Bryan but, at the time, Moloney was zapping me for being not his person, and Bryan finally retired and they folded the thing. I did get over to interview the Parsi's, you know, in India. But that's about all I did for the Breast Cancer Segment.

Baker: And, of course, with Ludwig Gross, nobody believed his results for about 2 years. And Sarah Stewart and Bernice Eddy came in with *Polyoma* about that time. So those two events I think really changed the outlook. And then you had a whole slug of cancer causing viruses being identified.

And then the second revolutionary change was really the oncogene story.

Depue: Well, there was reverse transcriptase too. That was later though, I guess, wasn't it?

Baker: Yes. That came right after this.

Depue: That came after that.

Baker: Well, the reverse transcriptase and the-- I think two things. The Todaro and Huebner paper wasn't quite right, but they got people thinking about whether there were oncogenes because the transmission story didn't fit an infectious agent in the usual sense, and so this led to Huebner and Todaro to postulate there must be something in the chromosomes with the information involved which they called "oncogenes." And then Temin and Baltimore with reverse transcriptase. And then Bishop and Varmus on the oncogene where you really began to get data on the coding that was similar in the viruses as well as in the chromosomes. So, we've seen a marvelous evolution of all this.

Depue: Yes. Indeed we have.

Baker: So you agree with that?

Depue: And I observed all that and I agree with it 100 percent. To this, however, to not be neglected, I would add something. That is, that until HIV-1 and 2, there wasn't a human virus in the bunch.

Baker: Unless you want to count--

Depue: EBV.

Baker: EBV.

Depue: There you go. That's the addition.

Baker: The herpes thing came a little later, of course, the evidence, I mean.

Depue: Oh yes, it came later.

Baker: But the activity was there.

Depue: But EBV still was the first human virus that was with great probability linked, and that was done from the West Nile Project to a large extent. I wish we had done the cofactor, the malaria. It still bothers me. But I wasn't Project Officer anymore, so that was it.

Baker: Any other names you can think of? I'm including, of course, Rauscher and Moloney and Friend and--

Depue: The Henles.

Baker: Well, we've mentioned them.

Depue: Yes. I've mentioned them.

Baker: So, I think we've covered the first question, unless you want to add something?

Depue: No. I would just add EBV to it, and there is de Thé and the Henles.

Baker: Well, that's good, because I don't want to neglect anybody.

Depue: Fine.

Baker: No. I know most of these things, but I want to make sure, you know, we don't miss something.

The second question is probably a harder one to answer.

Depue: You bet.

Baker: Except, again, you were in the middle of that and you knew some of that, but perhaps not at the higher levels.

Depue: Good Lord, I don't know though. I mean, what management decisions were made?

Well, except for ones that related to people, I don't really know that many.

Baker: Well, let me give you a little background just for your information. You may or may not know, but I worked with Smadel as his assistant.

Depue: Well, one of the management decisions dealt with resources, a la Bob Stevenson.

Baker: Let me back up a little bit. Congress voted NCI some money when I was still with Smadel, in Building 1, which was in '59 or so. From the NCI appropriation a million dollars in NCI grant funds were earmarked for increased work in viruses and cancer.

Depue: Okay.

Baker: And this was when the polio virologists were completing their work.

Depue: All right. Yes.

Baker: They were looking for things to do. So, we contacted several of the polio virologists to see if they'd be interested in cancer investigations. I also met with the V&R Study

Section to see if they would treat these viruses and cancer research grant applications with expeditious review since the Congress had indicated that they wanted the funds to be spent quickly. And they agreed. And I presented, before the V&R Study Section in Atlantic City, a slide which laid out a plan for the expansion of cancer virology, and they would have nothing to do with the plan.

Depue: Yep. I remember that.

Baker: But, if you turn that slide at right angles, it was sort of like the eventual Viruses Cancer Program Plan. But anyway, they wouldn't have anything to do with it. It was planning, of course.

Depue: There is something of that nature then maybe that I could come up with that I was involved with.

Baker: This was before you joined the staff.

Depue: Well, no. This is later. Because one of--

Baker: Well, let me take the next thing and then you--

Depue: Okay. Go ahead. You go ahead.

Baker: Because you will pick it up then. The next thing that happened was the decision--the key--one of which I think was made by Endicott based on inputs from me, Rauscher, and Bryan primarily, and some review with Zubrod, to seek a special appropriation of the \$10 million for the Special Virus Leukemia Program.

Depue: Yes. Well, that was before me.

Baker: And we put together a memo, the justification for asking for this, and Shannon demanded additional information before he would okay this. But that passed Shannon, and so Endicott asked for the special appropriation, and it got through. And then that led to, Carrese and I were in Ken Endicott's Office, his coming in to us, and he said, "You guys have been shooting your mouths off about planning. Give me a plan for a ten million dollar Special Virus Leukemia Program," which we did with Rauscher. And

we spent about 3 weeks away from the telephone and everybody and laid out that plan.

Depue: I'll bet.

Baker: That was a good experience. That's the best thinking I ever did, I think.

Depue: The only thing I came close to that was Ft. Detrick.

Baker: Well, this laid the ground work for how these programs, including the resources and all, developed. As you know, later it was changed to Virus Cancer instead of Virus Leukemia, as we started getting more and more solid tumors. And I think during its peak years it was a well-run program. What do you think?

Depue: I think it was well run, but I'll go into that in connection with a couple other questions maybe.

Baker: I'm just as interested in negative things as I am in positive ones.

Depue: Yes. It's a mildly negative thing, but--

Baker: So, I realize you didn't have as much information on those events.

Depue: No, I didn't. I wasn't here then and I wasn't following them closely at that point. But after I got here I came in on the resources thing, and our resources under Bob Stevenson, you see, were directed really at the whole outside virus community. It was the Virus Resources Branch.

Baker: Of course there were inside people too.

Depue: Inside too, but my contacts were 80 percent outside.

Baker: And I didn't see any distinction between intramural and extramural in a lot of ways.

Depue: Well, I didn't either. I thought that's the way it was supposed to be.

Baker: The decision making was quite different in the two areas.

Depue: But a lot of the people inside didn't feel that way, and a lot of people that were grants-oriented felt even less that way.

Baker: It's still true.

Depue: It still is.

Baker: Unfortunately.

Depue: So, where did I get involved, and again a perspective here? Well, I had represented Jim Peters on the Collaborative Program Directors meetings. I was the member from our Division, along with the Directors of all these other Institutes. He said, "I haven't got the time to go down there and sit there." He said, "You go down and talk for me," from which I got to know a lot of other people. This was fine, and some of these people are now Institute Directors. I was sitting there, and we were talking about contract programs, grant programs, all kinds of things. Well, finally, was it Frank Rauscher or you, came in with the idea of what were called Cancer Research Emphasis Grants.

Baker: That was not I.

Depue: It was Frank when he was Director. So, what happened was, we were to be almost the lead Division in that, and we had to develop Requests for Proposals for grants, which blew the minds of the Grant Division. They went like this. They said, "You sit on the Collaborative Program Directors Meeting. You are in charge of CREG." I said, "Oh, my God." So, just like with Ft. Detrick, I had to go around and say, "All right, what are some things that need to be done?" I went to Moloney, I went to everybody, picking brains, just like you have. You know? And I said, "What are some things that grants aren't addressing that need to be addressed?"

Well that was anathema to the grants people in our Institute and every other one.

Baker: Yes. That's why I set up the Organ Site Programs because they weren't doing the job. They were things that were badly needed.

Depue: Yes. So we got a bunch of things together, CREG grants, and wrote the things like RFPs, brought them out, and said, "We will receive grant proposals." So then I had to work with the Division of Research Grants, and the study sections, and I had to sit in on study section meetings. Well, the only ones I really enjoyed were Epidemiology, where I did my own thing in that. But the other ones, I got other people to try to sit in on. I

said, "I can't sit in on all of these things." And, of course, the first thing they'd look over to me, not so much in Epidemiology because that was the easiest one for me to handle and it was also the easiest one that I didn't get so upset about it, but all the other people would go in to all the other study sections and the Chairman would say, "Now, we have here something called a CREG Grant." And this is a Virology Committee or something. And, "What's a CREG Grant?" And it was explained to them by the study section Executive Sec, and then somebody would look up and say, "Who thought of this?" And then they'd point at me and say, "He did." And I said, "Oops."

Baker: Who did think of it?

Depue: Somebody up in Rauscher's office. I don't know who did it.

Baker: I don't know the story of that either.

Depue: It was like Ft. Detrick. It landed in my lap.

Baker: So that pretty much--

Depue: So, this is the problem, and still is, that the university people, a lot of them--not all of them--there is the grants mentality and there is the contract mentality. And we tried to meld them-- And I thought the CREG thing wasn't a bad idea actually. You know?

Baker: It can be fine.

Depue: It depends on what you put out. And I was careful. We didn't put out anything that was too dumb. And some of the people tried to say, "Oh, I want somebody to do this, this, this, and this." And I said, "No, that's a contract." And they said, "No." "You've got to get a subject and maybe an example, but not a project." I made them do it that way.

Baker: Did they understand what you were talking about?

Depue: Eventually. Well, it didn't get published if they didn't, because I had some control by then over it. And so this was always a problem and, as you know, today still is. And so-- Well, let's go on.

Baker: Well, I think this and your background have covered the third question all right.

Depue: Yes.

Baker: So, number four. This is broader than just the managerial intramural programs, but who were leaders in the field? Well, Sabin was clearly one leader who I'm talking about.

Depue: Not in Virus Cancer.

Baker: :I would say still his influence was sufficient to count him.

Depue: He had a lot of influence generally, and he did try to do it in cancer, but his record in cancer isn't that straight.

Baker: Do other people come to mind on that question?

Depue: Well, in virology, without doubt.

Baker: You mentioned the Henles already, of course.

Depue: I mentioned the Henles. Yes. They weren't the leaders. You asked who made discoveries and contributed.

Baker: I would put them among the leaders.

Depue: They were leading scientists. They weren't leaders of programs, if that's what you mean.

Baker: Well, I'm trying to encompass both.

Depue: I'm not sure what you're doing.

Baker: I'm trying to encompass both really, scientific leaders, managerial leaders, mixtures. Who were the key--

Depue: Well, you've got all the names. Other than what I've given you, I don't have any others to add.

Baker: That's all I'm asking. Okay. Fine. We can go on to the next one. And this is very difficult to remember, and I'm having trouble remembering.

Depue: I haven't the slightest idea because I didn't sit in. Oh, this is Contract Advisory Committees are you talking about?

Baker: Yes.

Depue: Oh, my God, there were hundreds of people. I don't know.

Baker: Like Melnick.

Depue: Yes.

Baker: Chuck Evans was chairman of one of our committees.

Depue: Well, Melnick certainly was out front.

Baker: Was what?

Depue: Out front and was a forceful committee member.

Baker: Yes. Right. That's an example.

Depue: Who else was a forceful committee member?

Baker: Kaprowski to a lesser extent. Hilleman, Maurice Hilleman?

Depue: I guess. You see, I didn't sit in on those meetings.

Baker: And then, of course, NCI staff were--

Depue: I didn't sit in on those committee meetings. I read the abstracts of their decisions on the contract actions. I read them all. I said, "If I have to read the abstracts, I'm not going to sit in on the meetings."

Baker: You're lucky you got away with that.

Depue: Well, I did. Unless it was some special issue or something.

Baker: I spent an awful lot of time going to those committee meetings.

Depue: So, I can't answer it.

Baker: Okay. The sixth one turns to the value of the resources, which includes a lot of things: tissue culture cell lines, virus preparations, antibody preparations, animals of various types. And here a comparison of what was available before the Special Viruses Leukemia and Cancer Program came in and after, I think, is a real contrast.

Depue: It is a real contrast, but do you count Bob Stevenson as before or after or both?

Baker: I think he came on after Harvey Scudder had initiated a viruses cancer resources program in grants in NCI.

Depue: Because didn't his Branch exist before that and was not part of it directly? It was put together at the behest actually of a study section is my impression.

Baker: Early on, prior to SVLP.

Depue: To provide things for the field of virology.

Baker: You mean a regular study section?

Depue: Yes. Or maybe not a study section, but a--

Baker: One of the committees in the Viruses Cancer Program?

Depue: No. Above that level.

Baker: Before 1964.

Depue: He dealt very closely with the Virology Study Section.

Baker: Yes. V&R. Virology and Rickettsiology.

Depue: Right.

Baker: But I thought when the SVLP was proposed, it was the other way around. We had a difficult time selling them on the idea of a planned program.

Depue: Well, that was just before I came, so I can't vouch for it because I didn't get here until '64.

Baker: I'll tell you why I think it's the other way around. When some of these polio virologists came into the cancer field, and partly by my calling them up and asking them would they be interested, and even when I was with Smadel I got to working with some of these people and got to know them, and I said, "You guys are very good about exchanging samples of virus preparations you get out and checking for the quality and the data but, by the time you give samples to all your friends to check out you don't have any left to work with. You need a lot bigger batches. Well," I said, "Industry is the way to go." And they said, "Ah, they won't do the quality good enough." And this included inside scientists like Moloney, as well as outside scientists. They both said, you know, industry can't make it good enough. So, with the Pfizer contract, I knew we

were over the hump on this issue, when Moloney came in one day and he says, "Jesus, we've got material from Pfizer on the Moloney virus and it's as good as anything we ever made, and we've got buckets of it."

Depue: Really?

Baker: And so I really think it's the other way around; that we had to talk some of those guys into the use of contracts for resources development.

Depue: When I arrived in '64, in Bob Stevenson's Branch, we were set up and devoted to the whole damned field, inside and out, and inside people had no particular priority.

Baker: Right. That's the way we set it up.

Depue: Okay. Well, that's the way it was. And I thought that's good. And that's the way I worked. Some inside people used to lean on us.

Baker: No. The quality of the thing and the quality of the proposals is the decision making to me, not whether it was inside or outside.

Depue: Yes. Okay. That's how it was. And I think that was good.

Baker: I'm like you on this.

Depue: I don't think the Virus Leukemia Program, itself, was that way. I didn't feel it was that way when I first arrived, or it got that way for a long time.

Baker: Well, I'm interested in how things looked at different levels, because they do look different.

Depue: Well, we were resources, and we reacted to the whole world, which I got somehow the feeling in here burnt up some people on the inside programs.

Baker: Oh, that might have bothered them, just like the Clinical Center bothered the old intramural scientists when it was built. But you don't worry about that.

Depue: But, I mean, I had that feeling in that because what were we doing? Well, we were giving contract money to places like the American Type Culture Collection through Bob.

Baker: You mean before he was there?

Depue: While he was there.

Baker: While he was where?

Depue: Branch Chief in Landow.

Baker: Yes, but he hadn't gone to the American Type Culture Collection by then.

Depue: Oh, no. That was before.

Baker: Yes. So, there's nothing wrong with that.

Depue: :I didn't say there was. I thought it was great. And, well, that was the way I thought it was. I had just sort of come out of academia too, in a way, and although I passed through a kind of place that was halfway between, and so I was oriented to it. The Mellon Institute is a big thing where companies have fellowships to do work.

Baker: Our intention, at least from higher up, was setting it up so it didn't matter whether it was in or out; you were interested in getting quality work done.

Depue: Yes. But within the Mellon Institute it didn't matter which you were on, or whose fellowship, or whose project you were on, or whether you were just Mellon Institute staff and got grants. And there were some of us that did that. And that's the way it was. And I had just come from a place like that.

Baker: When Endicott was Director and I was Associate Director, our philosophy was that we weren't too happy with all this schism between intramural and extramural and industry. You know, industry wasn't very popular with the academic community then either.

Depue: But, you see, that's why I came there. I said, "They're going to make it a little like Mellon Institute in a way," or Battelle was the other model like that. And I said, "I will feel reasonably at home in a place like that." So, when a guy from the Polymer Fellowship came down to me and wanted some kind of electron microscope analysis, I could work with him.

Baker: Yes. So, that was our intention from higher up anyway.

Depue: Yes.

Baker: But not everybody in the Institute felt that way, because Dr. Mider--

Depue: No. I know they didn't, including some of the Virus Leukemia people too.

Baker: Dr. Mider always would not let people in the intramural do things in the Chemotherapy Program and the viruses area. He was very opposed to planned research, of course. And I'm not talking about the research, I'm talking about research programming.

Depue: I don't know how he put up with John Ziegler. Maybe he didn't.

Baker: Maybe he didn't. Okay--

Depue: Maybe that's one of the reasons John got out so fast?

Baker: You're probably not aware of the relative funding of Viruses Cancer grants or contracts?

Depue: Yes, I was, but I don't have a judgement on it.

Baker: What is your impression of what the relative amounts were?

Depue: The big money went to grants, and most of the in-house money was sucked into the programs. Not all of it, but in the Virus Branches and all that, it was.

Baker: My guess is, and I haven't looked it up yet, is the amount of money in Viruses Cancer was higher in contracts than in grants.

Depue: Oh, in that field?

Baker: Yes.

Depue: Oh, yes. Okay. But in the cancer field, no way.

Baker: Oh, no, no. That was very small.

Depue: Cancer grants was huge compared to that.

Baker: Here is your chance to be "King for a Day." What would you change, if you could have changed anything? That's not an easy question.

Depue: I wish I was left to stay on those damned projects. That's what I'd change. The African ones. I thought I had made a big contribution, and I was very unhappy when I got

removed by John Moloney. I think that was a mistake. And his attitude, "The only people that can work on this program are people that are administratively under me."

Baker: Yes.

Depue: I said that to Frank Rauscher. He agreed, but couldn't do anything about it. And John Moloney did it to other people. I mean, the AIDS man--I cannot remember his name, my God I should--the virologist who was in Cancer Therapy then.

Baker: A virologist?

Depue: Yes. The guy that discovered HIV.

Baker: Gallo?

Depue: Gallo.

Baker: Oh, nobody could control Gallo in detail.

Depue: The first thing, Gallo might have come down-- I think Cancer Therapy would have been almost happy to have him come. He wouldn't come.

Baker: Because he was involved in virology, not in therapy.

Depue: Yes. And when he finally started working with it I got the very strong impression that John would like to put him in Building 41 and throw away the key. John complained about his work all the time.

Baker: You've got to have a real gutsy approach to things to like Gallo.

Depue: Indeed.

Baker: And I think he's great. I'm a backer of Gallo.

Depue: But he's brilliant.

Baker: And productive, like Huebner. Both of them were.

Depue: Well, John didn't like Bob Huebner either much in the beginning.

Baker: Well, you have to learn how to work with people like this, and not everybody can.

Depue: Huebner went out there and found good people and he got to work with them and he did it collaboratively, but there was a feeling that he exerted too much control. I don't think

there was any pressure applied. These people were happy to work with Bob. And they sent him their results and he gave credit when it was due. And he bugged John Moloney to hell.

Baker: I think Gallo was the same. People were jealous and they accused him of certain things.

Depue: Well, no. Gallo-- You could work with Bob Huebner. It was hard to work with Gallo. He was abrasive, just straight on abrasive. All I did in my work was, "Well, he belongs to Chemotherapy, and he's great. Good. And I don't deal with him," not that I had any need to.

Baker: Were you there when the Zinder Committee was reviewing the Program?

Depue: Yes.

Baker: What's your thoughts and impression about all that?

Depue: Well, they were right in a way, and I think it was probably a needed thing to do.

Baker: What did they say?

Depue: I can't remember all the things now. You would remember that more than I would.

Baker: Well, I wasn't there then, but my impression in reading it was that--

Depue: Well, I just read it. I didn't sit on it.

Baker: They mostly spent time worrying about Huebner having too much control and not enough examination about the quality and output of the work that was being done by the whole Program..

Depue: Well, I did sit in on some of it. Yes. Well, and who was chairing it for us?

Baker: Moloney. I mean he got the job of responding to the Zinder--

Depue: No, no. Who was kind of the committee secretary? Was it the Director?

Baker: Of the Zinder Committee?

Depue: No, no. Of the Cancer Institute.

Baker: I think Rauscher had just left, hadn't he?

Depue: Yes. And who was honchoing the Zinder Committee through on our staff?

Baker: :I don't know.

Depue: Well, there was somebody.

Baker: Yes. I know there was too.

Depue: :And I can't remember who it was.

Baker: But, see, I was in Europe then.

Depue: But that person kept saying things like, "But is he doing good work and does it need to be done?" When they were talking about Huebner, there was a lot of jealousy. Some of it was promoted by in-house people whom the outside people picked up and repeated. Some of it was horrendous in the way they referred to Bob.

Baker: Huebner?

Depue: Yes. And it was uncalled for. My God, Huebner had some of the smartest people in the whole country working with him. I think it was more jealousy than anything else. A lot of things that I did wouldn't have happened except for him, and he was bright enough to see good smart people and support them.

Baker: He also wasn't afraid to stop something if the data indicated it wasn't worth pursuing too.

Depue: Well he maybe was too ruthless that way sometimes. He was accused of being. I don't know that because I don't know all the things he stopped really because I wasn't working on that level. I would talk to Bob, and he was nice, and I would ask his advice on things once in a while, but I couldn't afford to be too close to him either because I had to deal with John. I mean, this is what was wrong.

Baker: This is real life.

Depue: Well, no. Good Lord, I had come from the Mellon Institute and there was none of that there and, if there ever was, the Director would have fired somebody.

Baker: Well, when I was still there I didn't think we had much of that either, but it's different now, I think.

Depue: Well, I don't think we have any more of it now.

Baker: Of course, we're not there.

Depue: I mean until '86.

Baker: We certainly have more politics.

Depue: There was less of it up to '86. Well, there were people who were-- I mean that reverse transcriptase stuff and the guy that did it, he was no angel either.

Baker: Oh?

Depue: Oh? Yes. He almost had to retract some of it.

Baker: This is a loaded question, of course, on whether you think significant foundations for the development of molecular biology and, I might say, biotechnology were laid by the activities of the Program.

Depue: Absolutely. Absolutely. Especially by Huebner's group. And some people that didn't work for him but worked in NCI, like Gallo.

Baker: I also think the availability of resources played a role here. People don't look at that.

Depue: Huebner had resources, and this was one of his problems too, they were very particular. He was very particular about his resources and he tended to get his own. He didn't come to us.

Baker: Yes. And I backed him on a lot of this.

Depue: All right. And it might have been justified in this case because what some of the people were doing was, for this time, really far out and needed things very different and specialized. I don't argue that fact. I reacted with him mainly through my job with Jim Peters as contract action advisor to him, and oft times I needed to find out things and I would call somebody in Huebner's place, and him sometimes--he was nice enough to respond and I'd say, "It isn't absolutely clear from what's here. Why are we doing this?" And he could always tell you exactly. And I'd say, "Thank you. I'll put it down."

Baker: Incidentally, I saw Janet Hartley last Tuesday for an interview.

Depue: Did you? Oh. Have you seen his wife? Harriet Huebner?

Baker: Bob Stevenson has talked to Harriet.

Depue: I was friendly with Harriet. I liked Harriet a lot.

Baker: Yes. She's a nice gal.

Depue: Especially after Bob died--or got sick.

Baker: Well, he hasn't died, but he might as well be with the Alzheimer's.

Depue: Yes. Well, I mean, got sick. I talked to Harriet in that period. That was after I left. I've got to talk to her again. I haven't followed up with Harriet for a long time.

Baker: The tenth question is general now. Forget about Viruses Cancer; we're talking about science in general now. And this is just your impression of the public's appreciation of science, degree of sympathy. Is it better or worse than it was in, say, 1955 or '65?

Depue: '65 is when I started.

Baker: Compared to now.

Depue: Well, their understanding is better. Their sympathies probably are too. But as of 3 or 4 years ago. I'm not quite sure what is happening at this instant. The pressure to cut back is so strong.

Baker: Yes. It's hard to unravel how much of it is due to simply the reduction of funds generally, compared to how they look at science. But some of the advertising really bothers me, like "No Chemicals." This helps to increase misunderstandings.

Depue: Well, I went through some of that, being an epidemiologist. I don't know how I got into it, but talking about the electric field stuff. I wasn't big in that, but, I mean, I did follow it and I read about it and--

Baker: We don't know what the data mean yet, I guess.

Depue: We still don't know what the data mean, although recently a paper just came out that gives something that might be a real--

Baker: The problem is their measurement is highly inaccurate in most of these studies.

Depue: No.

Baker: They've got some good ones now?

Depue: They've got this wire arrangement thing, and what it does, it gives you a good ranking of socioeconomic status, and that's what correlated with the stuff when they actually went and measured it. And some of the studies did it right, measured fields, spot measured them. And then, even in the same study, they couldn't get a correlation with that. So, the thing is that there is a confounder in that thing, and that's what it is. Now, a study recently came out with some appliances that give you fairly big fields, and they started to find something in the study.

Baker: Well, we'll have to wait and see.

Depue: Well, we have to wait and see. But these things give you electric fields that are measurable. And the second thing, they ought to know enough about physics that for almost all the houses the electric field outside doesn't make a bit of difference because of the square on the distance effect, and that if you're getting irradiated by any kind of field it's your own house wiring or your own electric blanket. And if you can't find anything in those, there is no effect. I mean, those cannot be negative and, if they are, it's a red herring. Now, these new appliances they did, they found two specific effects, on especially one appliance, barber's vibrators. They give the biggest magnetic field of anything. And they found that they started to find an effect on, what was it, leukemia.

Baker: In the barbers?

Depue: No. In the people that used them themselves.

Baker: That's new. I hadn't heard it.

Depue: On their head. Or wherever they used them. And they found a graded effect according to the field strength. They did hair dryers, they did vibrators, and they did electric razors, and the effect was minimal with electric razors--

Baker: That's nice. I use an electric razor.

Depue: --hair dryers was intermediate--

Baker: My wife uses that.

Depue: But, you know, these vibrating massagers were at the top, the ones that have that motor that spins, and that is exactly in line with the field strength. So, maybe there could be something in this, but those wires out there on the pole don't count. All right?

Baker: Okay. Number 11. This is your last chance to say anything else you would like to say.

Depue: My God, I've said a lot.

Baker: Yes, but it's been good.

Depue: Too much.

Baker: Anything else you want to say?

Depue: No. I can't think so.

Baker: Well, I certainly thank you for the time and the thought you put into it.

Depue: I've enjoyed doing it.

Baker: Yes. It's kind of fun to be reminiscing on some of this. So, I appreciate it very much.