

Oral History Interview: Dr. Bayard "Bud" Morrison, former Assistant Director of the NCI,

Interviewer: Dr. Carl G. Baker, former Director of the National Cancer Institute

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Baker: Dr. Morrison, would you first give us a little bit about your background?

I believe you have an M.D. from Emory University.

Morrison: I went to college in Florida, got my M.D. at Emory, did my training in the VA in Atlanta and the Public Health Service Hospital in New Orleans. When I first joined the Institute, in 1958, I went into the fairly new Cancer Chemotherapy Program at that time. Later on, I moved from that program up to the Office of the Director, where I was Assistant Director for what I think constitutes an NCI record.

Baker: In what way, Dr. Morrison?

Morrison: Length.

Baker: How long was it?

Morrison: It was approximately 15 years, 15 or 16 years.

Baker: And what kind of duties did the Assistant Director have?

Morrison: The Assistant Director was the equivalent of the person who works down in the Engine Room, oiling things, screwing on bolts, that kind of thing. No, truly, I was very fortunate in that I played a supportive role in almost everything that the Institute did, which was relating programmatically, to administratively, the whole drill. It was a marvelous experience.

Baker: So, in that time, you had several bosses?

Morrison: A number of bosses. Yes, sir.

Baker: About how many?

Morrison: I started out, and the first Director when I came in was Rod Heller, and the one when I went out was Vincent DeVita.

Baker: Well, that's quite an array (Heller; Endicott; Baker; Rauscher; Upton; and DeVita).

Morrison: Quite an array. Yes.

Baker: Okay. Let's turn to the specific questions dealing with the Virus Cancer Program and, as you know, we gave you some questions ahead of time so you could be thinking about them. So, the first question in that list was to give us your views as to the five or more, most important scientific results highly significant to the viruses cancer field during the period 1950 to 1980 and indicate key scientists involved in these results. I realize you were not in virology directly.

Morrison: Yes. I suspect you have excellent comments from other people you've interviewed on that. It appears to me--For me it's difficult to really piece a lot of that together. I think the Cancer Institute, as I understand it, really picked up on some of the very early programs and findings in virology, some of it well before the Cancer Institute even came along. But, I think that the Cancer Institute was fortunate in having among its earliest people there, people like Ray Bryan, who was one of the really early, early people in the field of tumor virology. I think it's true, and you probably know better than I, that for a long time the very idea of cancer being an infectious disease of any sort, and particularly viruses having anything to do with human cancer, although fairly early on people did observe viruses had a role in animal cancer, I think that they really had to overcome a lot of just in-built bias against the whole phenomenon. Certainly Ray Bryan was one of the early ones. I think a lot of what became programmatically involved you have to relate to some degree to people like Ray Bryan, like Sarah Stewart, like Bernice Eddy, and people like John Moloney and Dick Rauscher. And then I think you move on up

then to George Todaro, I believe, was involved in there, wasn't he, at some point?

Baker: With Huebner.

Morrison: With Huebner. Right. Well, I think obviously one of the important things in the period you're talking about, the Cancer Institute began to capitalize on some of the momentum that was developing around tumor virology, as well as having people who were generating that momentum. And after we really got past that phase, I think one of the key things was when Ken Endicott first started an organized program, and this was built around the observations that suggested that viruses might be involved in the causation, particularly, of leukemia.

Baker: Anybody on the outside of the Institute that comes to mind?

Morrison: Here again, you would know of the people involved. You had people like Payton Rous and Ludwig Gross and people like that whose careers started earlier but, I think, extended into the time when the Cancer Institute became active.

Baker: Gross particularly.

Morrison: Yes. Wendell Stanley, I think, was involved.

Baker: Very instrumental in helping to obtain Congressional support.

Morrison: I think he did more of that, didn't he, than actual research?

Baker: Right. But he was a valued consultant and advisor.

Morrison: And then, later on, Sabin became involved in the program. I'm sure there are others, I can't recall, but these are the names that stand out for me.

Baker: Very good. What do you think were the key administrative or management decisions affecting the virus cancer field during this period, and who made them?

Morrison: Well, I think the earliest one, after you took cancer virology out of the

closet and allowed it to become a real discipline, probably you can really attribute--give credit--to launching it as a program to Ken Endicott, who, in his tenure in the Cancer Institute, and in the NIH, as far as that goes, was really the first one to use the contract mechanism in research. Ken, using his innovation and being able to pick up these scientific clues, launched really a Special Leukemia Virus Program, to begin with, using the contract mechanism. At that time, the virus community, as I gathered, was quite small, and so it was sort of a deal where you had a limited number of people, a limited number of resources, to crank this thing up. So he launched this thing using, to a large degree, the contract mechanism to furnish the kind of resources that you need to do this and, as it went on, it was broadened much more widely into a Special Cancer Viruses Program.

Baker: Yes. It started out as the Special Leukemia Viruses Program and then, as information became available on solid tumors such as the Moloney sarcoma virus, and many other tumors--polyoma--it was broadened in its title and coverage.

Do you recall the special request for the \$10 million dollars?

Morrison: As I recall, that was for the special facility, wasn't it? No, no. That was not.

Baker: That was later.

Morrison: Oh, this was for launching the Special Leukemia Viruses Program itself. Yes.

Baker: Which didn't exactly fit in with the Administration's ideas. And so how that got gelled is an interesting story.

Morrison: Yes. Now that you can tell, because I don't remember the details of that.

Baker: Well, as you might imagine, Dr. Shannon had to be convinced, even if

Ken Endicott did propose it, that there was a good basis for making a special appropriation request to the Congress. So a memorandum was prepared, pretty much by Bryan, Rauscher and me, with Gordon Zubrod reviewing it. It was put together and Ken signed that and sent it over to Shannon. And Shannon approved Endicott's going to Congress because he thought the evidence justified it. He asked for some additional information, which we also gave him. And this allowed Endicott to make this special request. Dr. Zubrod said he thought he heard that Celebrezze, who was Secretary of HEW then, bawled Endicott out for asking for this outside the President's Budget, but I'd never heard that before.

Morrison: That's interesting.

Baker: You never heard anything like that?

Morrison: No, no. That's interesting.

Baker: Very good. Well, question number three, I don't expect you to have much to say here. What do you consider to be the main activities and effects of your participation in this field during the period?

Morrison: I could certainly write a book on that. Very little. I participated only in the sense that I could do whatever administrative back-up that was important to that effort, so I had no direct involvement in the program.

Baker: One job of the Assistant Director, as we both know since I held the job before you did, is to deal with a lot of correspondence, often for the Director.

Morrison: True.

Baker: You don't recall any special information in that area related to the Viruses Cancer area?

Morrison: Not really. No.

Baker: Okay. The fourth question is who do you think the main leaders were who influenced the direction and course of events in this field? And of course you've already indicated Endicott being one of them.

Morrison: You know, during your tenure there you served for a while as head of the Etiology Program, where you obviously could be a patron. You spent a time as the Director, where obviously you had a strong influence. You spent several years in the business of program planning, with you and Lou Carrese devising a very sophisticated way of planning what it took logically, scientifically, logistically, resources and all, to carry out a program. Rauscher, when he was Director and when he was in the Viral Oncology Program, was a moving force. I think, through all of these years, all of you, all of these people, really had put a lot of steam behind this Program. I think that it slowed down and began to have its problems really after Rauscher left. The Program did not prosper during Upton's time, in the sense that he lent it a great deal of support. My impression is, although a lot was going on, and I think a lot of that was due to the momentum that had been given it previously, it wasn't because of a whole lot of interest on the part of people like Upton and DeVita.

Baker: You mentioned Dr. Wendell Stanley as being very helpful. Do any other leaders outside of the Institute come to mind besides Dr. Stanley? Now I'm speaking of the managerial side, more than the scientific side, which gets us into the next question that deals with membership on committees.

Morrison: Well, who did we have on committees? Melnick, I suppose, was one who lent it some support.

Baker: A lot of help. We did briefly mention Chuck Evans, I guess, before we started.

Morrison: Chuck Evans, he wasn't a virologist, was he?

Baker: A microbiologist.

Morrison: Right, and my impression of Dr. Evans's work was that he was generally supportive. I was much impressed by his time there. I don't know of anything he did specifically though.

Baker: Except he chaired a committee which was very instrumental in the funding, so he was helpful partly because of his breadth, I think, and his general helpful nature.

Morrison: Yes.

Baker: And we've briefly mentioned Sabin. Dr. Sabin certainly was called upon many times to help us have information and weigh the evidence here and there.

Morrison: Well, Dr. Sabin spent a small amount of time at the Institute, didn't he? What was he there for? He was there, I know, for a while. I forget what he was doing when he was there.

Baker: It must have been after my time.

Morrison: I think it was.

Baker: But he was here frequently. In fact, I got to know him when I was with Dr. Smadel in Building 1, before I came back to the Cancer Institute. As you know, the polio problem was more or less solved, so there were several virologists who were looking for things to do since the polio game had changed, and so when I was in Dr. Smadel's office we actively tried to interest some of these people to come into the cancer field. And Sabin and Melnick were good examples of that.

Morrison: Yes, and I think it's probably fair to say that the NCI Leukemia and Cancer Viruses Programs, and later the National Cancer Program, through their very sophisticated and elaborate kind of planning, gave momentum, and continued momentum, to viral oncology, as well as a

number of other things.

Baker: We've dealt with question five, except for possible political figures. Do you remember anybody in the political side? And I define political broadly here to include those not only in the conventional politics in the Congress, but in scientific politics, so to speak as well. Do you have any recollections of key individuals there?

Morrison: Well, you know, the one that always comes to mind here is Mary Lasker, who was such a supporter of, not only of cancer research, but, of course, of many other parts of biomedical research. And again, you probably know whether Mary did anything particular for viral oncology. She certainly did a lot for oncology research in general. The same, to a degree, with Sidney Farber, although his particular interest was cancer chemotherapy. And I suppose you would have to identify, to some degree, all of these people that politically were involved, like even as far back as Michael DeBakey, back with the President's Commission on Heart Disease, Cancer and Stroke. I have difficulty naming people who were specifically involved in viral oncology in the sense you mean, but there were a lot of people who lent their efforts to creating a stronger National Cancer Program, e.g., Benno Schmidt, in the sense that he was a mover with the National Cancer Act.

Baker: You mentioned the Heart Disease, Cancer and Stroke effort. That would make an interesting history of exactly how that operated. There are a couple of general histories that touch on that, but that was a great disappointment to people like Mary Lasker because she didn't think it really moved in the direction she wanted things to go, I think particularly on the applied medicine end.

Morrison: As you well know, the main result of that particular effort appeared to be

regional medical programs, which was far afield from cancer virology. I was fortunate enough to have been on the staff of that commission.

Baker: Maybe you ought to write the history of that?

Morrison: Maybe I should. At any rate, the plans were just indigestible, I guess, as far as scientists went, as far as politicians went, and Mary was certainly right there; it didn't end up at all where anybody in the commission hoped it would.

Baker: Well, we turn now to the area of resources and the need for resources, a variety of resources, and whether the Program played a key role in providing such resources, such as tissue culture preparations, special animals, special protein materials for supporting tissue culture, for antibodies and tumor preparations and that sort of thing.

Morrison: Yes. I think if this had been an effort that had proven to be totally bankrupt in every way, which it wasn't, the very fact that it led to the mobilization of all the areas you're talking about, about cell cultures, animals, immunologic resources, the whole back-up part, has been absolutely indispensable, not only to that Program, but to programs, to scientific efforts, that have followed that. You know, somebody mentioned that if it hadn't been for these kinds of resources that were developed through this Program, the emergence, the appearance, of this catastrophic AIDS phenomenon would have really been completely unable to begin to cope with how to even go about dealing with a problem like that. If AIDS had occurred earlier, or if there hadn't been this back-up, the difference would have been just striking on our ability to deal with it. So, the simple answer to your question is that it was just enormously valuable.

Baker: I might jump ahead to question number nine, very related, on whether

you think this really played a significant role in, not only the resources, but the whole Program, in laying foundations for molecular biology developments and even biotechnology developments?

Morrison: Yes. I think so. I think that the initial idea and promise of the Viral Oncology Program never really bore fruit in the way that it was hoped it would, as far as finding truly linear kind of relationships between viruses and cancer.

Baker: In man, you mean?

Morrison: In man. This has not proven to be the case. You know, you have T cell leukemia, perhaps, you have things like Burkitt's lymphoma, and we're still working around the margins of cervical cancer--things like this-- where virus is deemed perhaps to--

Baker: Kaposi's sarcoma?

Morrison: Right. And these are important.

Baker: Uterine cancer, perhaps.

Morrison: Cervical. Yes.

Baker: In China, esophageal cancer.

Morrison: Yes. But I think--

Baker: Hepatitis.

Morrison: In the sense it may relate to liver cancer.

Baker: Certainly there is an increase in hepatoma in those infected with certain hepatoma viruses.

Morrison: These are all important, but I think my initial point really holds; it really didn't prove to be the same sort, for the most part, of linear kinds of relationships.

Baker: Like we found in animals?

Morrison: Like we found in animals.

Baker: So, I think that was a disappointment to all of us. But what happened, of course, was a change of emphasis from the virus oncogene itself to genetic coded information of viral oncogenes, or oncogenes that were present without the virus, and so you shifted the whole perspective from a focus on the virus and possible vaccines to the genetic oncogene being switched on or off, and that really changed the direction of the whole viruses cancer thrust.

Morrison: Indeed it did, and opened up an entirely new area of research investigation too, which is still being explored and blossoming. Exactly right. Yes.

Baker: Of course, the key findings were those of Temin and Baltimore finding reverse transcriptase to explain how RNA viruses could do their job, and then those of Bishop and Varmus showing the oncogenes, or proto-oncogenes, present in chromosomes, even though viruses apparently were not involved in that individual previously.

Morrison: Exactly. Yes, divorcing the virus from the whole thing. That's true.

Baker: Are you aware of the relative funding of Virus Cancer grants compared with contracts during this general period?

Morrison: I think probably during most of the period contracts really exceeded grants by quite a bit. I would say this was certainly true for the origins of the Special Virus Leukemia Program and next the Viral Oncology Program. You probably again know better than I, but I would imagine with the launching of something like the National Cancer Program, that a lot more grants funds were poured into the area of viral oncology than previously. What it is currently, I have no idea.

Baker: Well, originally, a lot of people don't remember that in the regular appropriations Congress earmarked \$1 million dollars of the

appropriation for cancer virology grants, and that was before the special request of the other \$10 million. And part of the justification in some people's minds of the special appropriation request was that the first \$1 million sort of got diffused into the regular grants area and wasn't sharply enough focused on cancer virology, per se, but not everybody agreed with that, of course.

Morrison: Of course not.

Baker: Especially those who received some of the original \$1 million.

Morrison: Here, this is just for my own information, wasn't there growth also, say, outside of this envelope of \$10 million that went into virology contracts? I mean, wasn't that an expanding area?

Baker: Oh, once that started, that did exceed, I think, the grants for a while. Well, question number eight is, if you could have changed anything in this field as it developed, what would you have liked to have changed, and how, or maybe why?

Morrison: I don't know. I think maybe one observation that relates to a later question: there might have been somehow a more concerted effort to bring the American public more on board. Scientifically I don't know what might have been done differently. There has always been a problem anyhow with scientific and health issues, getting the public to understand and getting them on board. I'm not knowledgeable enough to know what might have been changed scientifically. And programmatically I think it was, all in all, for quite a while, a very sound, well run, well focused program.

Baker: A little shift of emphasis again on the question of the political climate and public knowledge. About science, is the public more sympathetic, less sympathetic, or about the same now toward science compared to

1965 or '70?

Morrison: I always get up on a soapbox when this kind of question is raised because I think the American people, generally, have been in the past, and are today, basically scientifically illiterate, and I think their interest in science, medical science in particular, is that somehow something will be done about the kind of health problems that plague them. But, unfortunately, I think they are often only too willing to accept the one that sounds like the quickest fix. I think the American people, in condoning and utilizing things for which there is little or no evidence to support them, all the way from acupuncture to astrology, fail to understand how difficult, not only it is to make progress in the field, but how difficult it is to translate what you do in a laboratory somewhere into something that will be useful to take care of the problems they're so interested in. I think this is a basic troublesome kind of problem that is going to plague us until somehow we decide we're going to attack it in a more rigorous and effective kind of way.

Baker: Do you think they're more supportive of medical research than they are scientific research in general?

Morrison: Yes, I think so, because they, at least, with medical research, see some sort of "pot of gold" at the end of the rainbow, and I'm not sure they even see the rainbow at all, as far as just general scientific research goes.

Baker: I agree with what you said. I was a little surprised that Dr. Zubrod thought that the public was much better educated in science now, and he was impressed that his grandchildren were very knowledgeable of all kinds of science things. I think he must be getting input that's different from ours, or something.

Morrison: Yes. I think that's great, but I would suggest this is anecdotal, because my

own son, who is very bright, knows nothing about science. People who live around me in my little court know nothing about science or NIH, or NCI. And this has been my experience right along.

Baker: I think mine too. Okay. Do you have any other comments, or questions, or answers, or--

Morrison: No, sir, I do not. It's been a pleasure. It's always a pleasure to have the opportunity to share views with you, Dr. Baker, and to help you with this most admirable project.

Baker: One other question, related to the public's knowledge. As you know, I believe because of pressure from a particular Congressman, the NIH has established an Office of Alternative Medicine. Do you think that's appropriate? I believe they gave \$13 million dollars in grants out last year in this area.

Morrison: Would you repeat that question, Dr. Baker?

Baker: The basic thrust is a question of political decision-making being applied to scientific problems and, as an illustrative example of my concern about additional politics being brought to bear on basically scientific issues, is the creation recently of an Office of Alternative Medicine which is apparently funding research in homeopathy, meditation, acupuncture, various psychological aspects. There is a question whether those areas can actually be researched scientifically. For example, I could see great benefit, perhaps, in settling whether acupuncture is valuable or not with a well designed clinical trial. However, when I started looking into this, I found out that there is no agreement of what constitutes the appropriate acupuncture procedures, and therefore you would have an endless request for supporting funds for additional studies since the different people in the field can't agree on what constitutes

acupuncture. And they don't quite have astrology in that program, but--

Morrison: Well, I think, for the most part, this is cloaking a bunch of nonsense in the respectable garb of science. I think most of it is nonsense. You know, when I was in the Cancer Institute I spent a lot of my time dealing with so-called "fringe" medicine, or unproven methods, and all this kind of stuff and, for the most part, they are nonsense, and I think you have to keep alert to these and some of them you have to look into. The Cancer Institute, as you recall, spent a lot of time and effort in fiddling both with Krebiozen, which was the craze at one time, and then Laetrile, which is a craze, some years later. At the expenditure of tons of time and many, many dollars, these things were shown, really, to be ineffective. But, if you scout around this country today, and other countries, you still find people that are using Krebiozen, still using Laetrile. I think probably you ought to tackle these on an Institute-to-Institute basis. When you give them legitimacy with an office for this kind of stuff, I think you are in for big trouble because, by virtue of its existence, this means you're going to have to expend funds looking into some of these worthless things and you're going to be subject to a whole lot of pressure on the part of a lot of people.

Baker: I understand that a particular Congressman put considerable pressure on NIH to create this office. You may recall that we were under considerable pressure from Senator Paul Douglas to test Krebiozen, and you may also recall that when we finally got all the information together, with a lot of help from the inspectors of the Food and Drug Administration, we not only proved that it was no good, but it turned out to be only a name. There was no real substance at all.

Morrison: It didn't exist. Exactly.

Baker: And yet all this time and effort was spent. But we stood up against the pressure. My guess is if Shannon had still been the NIH Director today we wouldn't have this Office of Alternative Medicine, which I consider, as you do, an inappropriate pretense of a value that's not there.

Morrison: I agree, and just a final word. I think it feeds right in. If you just scan the radio dial these days you will find chiropractic, which I think is iffy in areas beyond strictly manipulation of the spine (in some cases they are good in muscle relaxation and this kind of stuff) but you will find that homeopathy, for example, and it is advertised like you do V8 juice, I mean with no embarrassment for exaggerated claims, with no suggestion at all that it might be worthless. I mean this is the point, one of the spin-offs of legitimizing these so-called "serious" health remedies.

Baker: Well, V8 juice has some value.

Morrison: Yes, it does. But you get my point. You know, there is enough of this in the wind now without, as you have pointed out, caving in and legitimizing it within the NIH, which has a certain reputation and all, and making it part of the scientific enterprise.

Baker: Of course, we can close this discussion by my reminding you what Congressman Rogers said to me across the table one evening. "You know, you could be wrong." Thank you very much Dr. Morrison. I appreciate your time and effort.

Morrison: Thank you.

Conclusion of Interview