

**Dr. Claude Lenfant Oral History Transcript**  
**Conducted by: Dr. W. Bruce Fye**  
**December 8, 1999**

This is the third in a series of oral history interviews with Dr. Claude Lenfant, Director of the National Heart, Lung and Blood Institute, on 8 December 1999, in Bethesda, Maryland. The interviewer is Dr. W. Bruce Fye.

LENFANT: I think the National Heart Institute became the National Heart and Lung Institute at the end of 1969. That was a decision made by the Secretary [of Health, Education, and Welfare]. Already in those days the “disease of the month” existed and there was lots of pressure on the part of the American Lung Association to create a lung institute. Of course, [Theodore] Cooper got involved with that. He said, and I think rightfully so, that it makes no sense to have a lung institute when we have a heart institute, and why don’t we make the lung a component of the National Heart Institute. So they renamed the Institute. This happened at the end of 1969, and it was then that Cooper began trying to find out what all the people who wanted to have a lung institute really wanted to see done. This is when he sent a letter to all the heads of the divisions of lung disease in the country.

FYE: What was your position when you received that request from Ted Cooper? You were in Seattle.

LENFANT: Let me see, I was at that time an associate professor of medicine. I was also in the department of physiology and biophysics. I had not received my rank of full professor yet. That came later. The head of the division, a man by the name of John Butler was away. I think he was on sabbatical, so I was the acting chief of the division at that time.

FYE: Is that the reason that you saw Cooper's request? If Butler had been there, do you suppose he would have responded?

LENFANT: No, it was sent to me because I was in a study section. I was a member of the Physiology Study Section, which, in those days, was a very important study section. Today, physiology has been replaced by molecular genetics and other approaches, but, in those days, physiology was very important. Also I had served on many site visits for the National Heart Institute training grant review committee. In those days all training grants were site- visited. Now we don't do this anymore. But, in those days, it was done, I had been invited to serve, and so the letter came to me. My name was not unknown to them. It was then we worked on replying to Cooper's letter which I thought was a very interesting letter asking us where a lung program should go and what a national lung disease program should look like.

FYE: You mentioned the last time we spoke that Hugh Smith collaborated with you in writing the letter.

LENFANT: Yes.

FYE: What was his position?

LENFANT: It was quite useful because in those days he was a fellow; he was not what he is today. He is a very astute man, and I think he saw in this letter and in what we would respond some of the elements that he would like to see for himself in the future. It is because he was such a dynamic and forward-looking kind of man that I asked him for his opinion. We worked quite a bit on this letter as I recall, and, eventually, we sent it. I guess Cooper liked it.

FYE: I guess he did! You have talked about this in earlier interviews but expand a little more on why you found this letter so interesting and why you worked so hard on your reply. Why did you think NHLI would take notice of such a long and detailed proposal?

LENFANT: The answer to that is very easy. I was probably very naive. I thought that the government . . . Today I would know better! But, in these days, I guess I was being naive. I thought it was very important because I could sense that lots could be happening in pulmonary research. Then it was kind of a dead end type of subspecialty. It really did not exist in this country. I do not know if you know this, but in those days very few universities or medical schools had a division of respiratory disease or of lung diseases as it might have been called then. Pulmonary programs and pulmonary teaching was either in infectious diseases or in the divisions of allergy. The University of Washington was relatively forward-looking by having a division of—I forget what it was called—I think it was called the division of respiratory disease. John Butler, who was an Englishman, was the first director of it. He had been invited to come, I forget if it was by [Robert] Bob

Williams or [Robert] Bob Petersdorf, but by one of these two; I forget if Bob Williams was already out of the picture, but Butler had been invited to come and create this division. Before that, Bob Williams knew that it was important to teach pulmonary disease, and I suppose this was why he invited me to come over to the United States and offered me a position to be part of the nucleus. But there was nothing formal at the university hospital, and this is why I was doing most of my work in one of the affiliated hospitals, which was an old tuberculosis hospital. It was called the Firland Sanitorium. So that was how all that happened.

FYE: I wonder if you could summarize the points that you and Hugh Smith made in the proposal to Ted Cooper.

LENFANT: We thought, and, as a matter of fact, I still believe that it was important to build a national lung program to give visibility to lung research. Also in these days you have to remember that there was really a shift away from tuberculosis. Back then, when you were talking about pulmonary disease, the first thing that would come up was tuberculosis. In fact, at the Firland Sanitorium, people who were diagnosed with tuberculosis were locked up in the hospital in a secure ward until they had two negative sputums. I do not know if this was a country-wide policy, but that was what it was in Washington State.

FYE: It was really a dramatic form of quarantine.

LENFANT: Yes. People had to have two negative sputums. But there was the beginning of an emergence of COPD, the Surgeon General's report on smoking had come out, people were beginning to think about COPD; lung cancer was also moving into

the picture. Butler was very much interested in pulmonary circulation so that was also a focus in our program. We felt that there should be a visible research focus and also a training program to develop a cadre of people specializing in these diseases . . . a discipline. I cannot give you the details of what I wrote at that time, but these were the main points: a focus for the research, broadening the scope—I mean, if we did not broaden the scope, the focus would remain tuberculosis—and, of course, developing broad research programs.

FYE: How long had you been in the United States when you made this proposal in 1969?

LENFANT: I came at the end of 1960.

FYE: So you had had almost a decade of exposure to the United States structure of research and academic medical centers?

LENFANT: Yes.

FYE: How much of the proposal reflected your experiences in France?

LENFANT: None at all.

FYE: It was all unique to your vision of what the possibilities were in this country?

LENFANT: Oh, yes. Nothing came from my experience in France because actually it had been mostly in experimental cardiovascular surgery and things of that sort.

FYE: As we mentioned last time, by 1969, you had moved dramatically toward pulmonary physiology and away from the heart-lung machine and all of that related research.

LENFANT: That is correct.

FYE: You mentioned that the American Lung Association had been one of the groups that had lobbied the NIH to develop a division or an institute of lung disease.

LENFANT: Yes. What they wanted was an institute dedicated to the lung; but what was finally done was an excellent compromise.

FYE: Did you have any dealings with the American Lung Association?

LENFANT: None at all. I am not sure that I knew they existed. It is very interesting. After I came here to the NIH, I visited with them, of course. The equivalent of [William] Bill Nelligan for the American Lung Association was a fellow who had been running tuberculosis programs for, I don't know, 30, 35, or 40 years. He was a real weird leader and a character. I cannot remember his name.

FYE: But he was the face of the American Lung Association at that point?

LENFANT: Yes. It is interesting that you use that word. Today, each time I talk to the lung community I say "You have to give a face to respiratory disease" which they do not do. But this is another story.

FYE: Do you recall if there were any other groups lobbying? Were there groups of academics that were interested in pulmonary physiology or pulmonary disease in particular that also were enthusiastic about creating an institute for lung disease?

LENFANT: All that I can tell you is that it was very interesting. You ask a very shrewd question here. I think clinically there was nothing going on in the country in pulmonary disease. There were a few islands here and there, for example, the University of Colorado in Denver was certainly a nucleus for clinical research. I do not know if a name like [Thomas] Tom Petty would . . . .

FYE: Yes, I know the name.

LENFANT: He was kind of the guru with his mentor, Roger Mitchel. I would say probably 25 percent of people who are today chiefs of respiratory disease in this country went through his program. So he was very active clinically, but was not a researcher. He was (and still is) a very good clinician. So there were a few nuclei of pulmonary disease activities, not least the Cardiovascular Research Institute in San Francisco headed by Julius Comroe. At Columbia University, there was the group of what was left from the period of Cournand and Dickinson Richards, but not much. But, in contrast, in the American Physiological Society there was a group of respiratory physiologists which was probably one of the very best. It was certainly ahead of the cardiovascular community at that time, because of the strong influence of Wallace Fenn and Herman Rahn, whom I mentioned earlier. They were the big names in respiratory physiology, the people who ran the wartime research. I mean, they were the leaders of research on adaptive processes during the war: G stress, the CO<sub>2</sub> exposure in submarines, and things like that. I could show you books here that they published in these days. They were in the department of physiology in Rochester, and Herman Rahn moved to Buffalo; they were like a magnet for people all over the world. Both were members of the National Academy of Sciences, both had been presidents of the American Physiological Society, and they were very much respected. So for this reason there were departments of physiology in the country where pulmonary research

was being done on control of respiration, mechanics, etc., and they were very active.

FYE: You would have come to know many of these people through the Atlantic City meetings. Is that how you met many of these people in the 1960s?

LENFANT: Not the physiologists.

FYE: No.

LENFANT: I met the physiologists at the meetings of the American Physiological Society. There were two a year, as you know, a national one which was with the Federation of American Societies for Experimental Biology [FASEB]. In those days FASEB was a consortium of many scientific societies, and they had one meeting a year which was in the spring, in Atlantic City. So we were all converging there; there were 20,000 people from all these societies, but there was a very strong physiology group. The clinical group was at the time of the young turks, the old turks, and the young squirts.

FYE: Were those meetings at different times in Atlantic City?

LENFANT: Yes.

FYE: So the meeting with FASEB was at a different time?

LENFANT: Yes. I think FASEB was early in the spring, and then the clinical meetings were either in the first week in May, or something like that.

FYE: So for the Atlantic City meetings, it is important to understand that there were different groups of biomedical scientists and academic physicians.



LENFANT: Yes. Then, in the fall, there was an American Physiological Society meeting, which was always on a campus of a university.

FYE: That meeting moved around every year from one university to another?

LENFANT: Yes, absolutely.

FYE: How was your proposal, the one that you and Hugh Smith put together, received by Ted Cooper and the people here in Bethesda?

LENFANT: I cannot give you the details. All I can tell you is that shortly after we sent our letter, Cooper called me, and we talked on the phone, and he said, "Would you like to come and visit so that we can talk some more." Which I did. He invited me, and I came. I probably spent a day in Bethesda or something like that, and I went back to Washington State. Later he called me and asked if I would come again. That was when he asked if I would consider coming to the NIH on a leave of absence from the University of Washington, and I said I did not know. I think I mentioned to you that by then my personal life was undergoing some changes and I thought this was an appealing way to solve a few problems. I discussed it with Petersdorf who was very supportive of that. So I said I would do it. I know I came one more time to Bethesda. I remember that was the beginning of affirmative action programs and Cooper had a meeting to discuss affirmative action in a place which is . . . you know where Annapolis is, of course. Have you ever been there?

FYE: Yes.

LENFANT: If you drive further than Annapolis you cross the [Chesapeake] Bay—there is a bridge over the Bay—and on the other side was—I do not know what you would call it—I think it was an old cloister or something which had become a sort of convention center. I remember that we went there, and I can tell you the one thing that I remember most is how uncomfortable the beds in that place were. Probably for nuns it was perfect! There I attended an Institute retreat which I thought was rather amazing, but at any event... Then I went back to Seattle and shortly after that I received a formal offer and came to NIH. I drove across country.

FYE: You drove?

LENFANT: Yes.

FYE: That is a long trip from Seattle to Washington, D.C., to Bethesda. Washington to Washington, sort of. Who else did you meet at the NIH when you came for those visits in terms of deciding whether or not to take this position.

LENFANT: [Robert] Bob Berliner, who was the Deputy Director of the NIH, [Robert] Bob Marston, who was the Director of NIH, and, of course, people in the institute. There was [Jerome] Jerry Green, does that name ring a bell?

FYE: Yes.

LENFANT: Well, Jerry Green was clearly against me coming. I think he was called the Associate Director for Extramural Affairs, or something like that. The position that Cooper had given me was Associate Director for Lung Research, I think that was the title, or Lung Program. Jerry Green resented that very much because he saw me as parallel to him, even in some way above him, and he was very

protective of his position. It was very difficult for him to understand this kind of arrangement because, of course, he was overseeing all the cardiovascular training and research programs and also of a small blood program that existed then; it was called the Thrombosis Research Branch or something like that. It had been made very clear that anything that would be lung related would be under me, but he would keep the management aspect, not the scientific part but the management. It was kind of an awkward arrangement, I have to say.

FYE: For the heart part, was he also involved with the scientific part and not just the management?

LENFANT: Oh, yes.

FYE: He did it all for the heart?

LENFANT: Yes. He did it all.

FYE: Then you came in for lung and did the scientific piece, but they kept him dealing with management?

LENFANT: Yes, that is right.

FYE: What was his background?

LENFANT: Jerry Green had been... You know today I just received an e-mail from him. That is the first time he wrote to me since he left the NIH, which was after Harold Varmus came. He left the Institute [NHLBI] when Bernadine Healy was director of NIH and he became the director of the Division of Research Grants, the division where all the reviews are done. He did not get along with Varmus, or Varmus did not get along with him, whichever, so he retired from the Corps. But

that is the first time I have heard from him. He was commenting on an editorial that I wrote in JAMA last week. I do not know if you saw it.

FYE: I have been away for 10 days. I missed it.

LENFANT: I was invited to give my vision of the state of cardiovascular medicine, and so he commented on that. Again at the time I came and met Jerry Green, Peter Frommer was also here, and then there was another man who was in charge of the artificial heart research program. His name was Frank Hastings.

FYE: He edited that great big burgundy book on the artificial heart program, I think.

LENFANT: That is right. Frank Hastings had this vision that within three or four years, whatever, everybody in the country in need of it could have an artificial heart, which, of course, turned out not to be true. But the man was an absolute fanatic to the point that he deliberately ignored lots of scientific research data, and, eventually, Cooper asked me to oversee him. Because the lung program was relatively small, I had lots of time to look at things, so Cooper asked me to be in charge of all the contract aspects. And at that time, in effect, Peter Frommer was the Director of the MIRU. Do you know what the MIRU is?

FYE: Yes.

LENFANT: The Myocardial Infarction Research Unit also came under me because that was a contract program. Cooper asked me to oversee all the contracts which were with Frommer and Hastings, and I think the blood program was also a contract so that too moved under me. That was quite an interesting time. These two men resented it very much.

FYE: Well, you were an outsider to them.

LENFANT: Oh, yes.

FYE: That must have been a big part of it?

LENFANT: Do you know something? I was probably the first person ever to be recruited from a university, or one of the first; Dr. Hastings had been a practicing surgeon.

FYE: How did they get here? How did the rest of them get here?

LENFANT: Most of them got here through the Commissioned Corps.

FYE: So, after their internship or after their residency, whatever the arrangement might have been, they came and worked with someone and then they had just stayed.

LENFANT: Yes. This was how Frommer made it here. He came during the Vietnam War. The Vietnam War was the best thing that happened to NIH.

FYE: Expand on that. That is an interesting concept. Was it because so many people came to the NIH as an alternative to going to war?

LENFANT: Yes. The NIH had a tremendous opportunity to pick and choose who they wanted, and they picked the very best. That is why there was such a cadre of remarkable people who worked here. This is not to say that there are not any now; there are still very remarkable people. But I can tell you that the extramural program staff grew in an amazing way in those years. Many of the people like Peter Frommer, for example, who had come to be in the intramural research program decided to move into the extramural activities and to manage programs. And these people were pretty smart. Frommer was a very remarkably smart man, and he is an example of many of the people who came at that time. Do not misinterpret what I

am saying as saying that people now are not as smart, but it is much more difficult to recruit them now because in many ways the positions here do not have the attractiveness of being a professor at a university.

FYE: You make a fascinating point. We talked last time a little about how so much military and defense related research—you mentioned earlier the submarine research during World War II—propelled science. . .

LENFANT: Certainly pulmonary physiology.

FYE: Yes, and once again, in a rather circuitous fashion, a military endeavor in Vietnam, because so many young American men felt vulnerable to the draft and recent medical graduates had an alternative to going into the armed forces overseas which was inevitable . . .

LENFANT: Yes.

FYE: . . . almost if they didn't and this was not . . .

LENFANT: Unless they would go into the Commissioned Corps.

FYE: Now how did that differ from the Berry plan? The Berry plan was a means of doing additional training, but then I think a person went in in a specialty . . .

LENFANT: Now that you use that phrase, the Berry plan. I know I have heard about it, but I must admit I completely forgot what it was. But all I can tell you is that, at the time of the Vietnam War, if people were in the Public Health Service, in the Commissioned Corps that was equivalent to military service. The Commissioned Corps is basically the non-armed branch of the armed forces. Do you understand?

FYE: Yes, I do.

LENFANT: And they all have a naval rank.

FYE: I see.

LENFANT: Peter Frommer, when he retired, was a rear admiral.

FYE: He maintained his commission in the Navy throughout his career?

LENFANT: No, in the Commissioned Corps. It is the non-armed branch of the armed forces. You have the Navy, the Air Force, the Army, the Marines, and what is called the Commissioned Corps which consists of people who have exactly the same rights, privileges, and responsibilities as somebody in the Navy or in the Air Force, but they have a civilian occupation instead of having a military occupation, a non-armed occupation.

FYE: How many people here are in the Commissioned Corps? This is something I am sorry to say I do not understand. Would Frommer's situation be unusual?

LENFANT: No. Here in the institute we would have a limited number of officers. People who signed up in the Commissioned Corps of the Public Health Service must stay here at least 20 years to get their retirement. In those days, people thought that was okay, now it is much more difficult to get people to come for 20 years. But still, in the institute, among the professional staff, I would say about 15 percent of them are in the Commissioned Corps. Do you know [Lawrence] Larry Friedman?

FYE: I know the name.

LENFANT: He is in the Corps. Peter Frommer was in the Corps. Jeff Cutler is in the Corps. Gene Passamani was in the Corps. When he left here, he retired from the Corps.

FYE: It is very interesting the paths that people follow to get to a specific career. You mentioned that you were the first to be recruited from an academic position, you came through a different pathway and that created some tension because that was a new model.

LENFANT: Yes, I was clearly an outsider.

FYE: Now, you were an outsider . . .

LENFANT: There are a number of people who had come here in the Corps and then a decision was made to send them somewhere for training and whatever, but they were in the Corps. Jerry Green, for example, speaking of a name that is familiar to you, came here in the Corps, and then he was sent to San Francisco to the Cardiovascular Research Institute to spend two or three years, and he did that. Steve Epstein was in the Corps. When Steve Epstein left here he retired from his commission.

FYE: You told me that Bob Petersdorf was enthusiastic about your appointment here in Bethesda.

LENFANT: I said he was supportive; I do not think he was enthusiastic! But I think he was supportive.

FYE: I would assume that he would think that it would be prestigious for his program, in a sense, for you to be here.

LENFANT: I would not use that word, but Petersdorf and I got along very well. Do you know him?

FYE: I have known him only casually for quite a long time, 30 years probably.



LENFANT: He is a go-getter, a very forceful type of man, and forward-looking. My office was just across the hall from his. The department chair's office was just across the hall, so I would see him all the time and we would chat. I do not want to sound like a person who is promoting myself, but I go and get things done, and he liked that. We got along very well.

FYE: It would appear that you were identified very early on as somebody who had unusual administrative talents over and above your background in pulmonary physiology and your research accomplishments which were very evident, I am sure, to anyone that took the time to look at all the things you had published. But you mentioned that, when you came here, you were very quickly given some administrative responsibilities.

LENFANT: Yes.

FYE: How did that come about and how did Ted Cooper recognize that?

LENFANT: He is dead now, so you cannot ask him, but I do not know. Ted and I very quickly developed a nice personal relationship. I was here by myself, the NIH campus is here [draws a map], here there is a street which is called Battery Lane, and I was living in a miserable apartment on Battery Lane. Ted Cooper lived in one of the residences here on the campus. You know there are some residences on the campus?

FYE: Some two-storey colonial homes on the campus.

LENFANT: That is right. He was living in one of them. His office was here [in Lenfant's current office], and my office was down the hall there. Very often at the end of the

day we would find ourselves going down in the elevator together, and he would say “Why don’t you come and have a drink and have dinner,” or whatever. I got very close to his wife and his children. They were little children. Also Ted Cooper used to come to work very early, and I always come to work very early so we would meet each other here at 6 o’clock in the morning and there was nobody else here at that time. In addition, Ted Cooper was very interesting. He had come here during the Vietnam War. . . . Another thing I should say is that we were within one month of being exactly the same age. But he came here during the Vietnam War, and he trained in surgery with Andrew Morrow.

FYE: Andrew Morrow, okay.

LENFANT: Yes, the hypertrophic cardiomyopathy surgeon, the one who promoted cutting of the septum as a surgical treatment.

FYE: Septectomy.

LENFANT: That is right. While Cooper was at the NIH, he also developed some interest in pharmacology. There was a very famous scientist here at that time by the name of Brodie. I never met him, I think he was gone by the time I came. I suppose Cooper did very well and made quite a name for himself in pharmacology, because he was appointed chairman of pharmacology at the University of New Mexico. I do not remember who was the director of NHLBI. I can tell you who was the director from the book here; okay, Donald Fredrickson was the director of the institute at that time.

FYE: What we are looking at now is the publication *A Salute to the Past*, on pages 24 and 25 where the directors of NHLBI are pictured and discussed.

LENFANT: That is a book that I had prepared for the fortieth anniversary of NHLBI. So Fredrickson was the director, and when Fredrickson decided to step down from being director and go back to the laboratory, Cooper was invited to come back from the University of New Mexico as the director of the institute. When he was here, he kept on working in the laboratory from time to time, at least at the beginning, and one of the people with whom he was working, who now is somebody who has quite a name for himself, was [Kenneth] Kenny Kent. Do you know him?

FYE: I know of him. I do not think I have ever met him.

LENFANT: I remember Kenny Kent. Very often, at 6 o'clock in the morning, those few of us who were here would chat for a while. It was Cooper, Kenny Kent, the man working under Cooper in pharmacology who was interested in adrenergic receptors and things like that, and me. That is how I got to become friendly with Cooper.

FYE: So you did develop a little network of people here in the Institute fairly soon after you moved to Bethesda. There was some resistance, some tension, and some resentment, as you mentioned, because you were an outsider, but it seems that fairly soon you were starting to develop a network of friends and collaborators. Is that right, or am I over-simplifying it?

LENFANT: I think you are over-stating it really. I would not say developing friends. To me, the NIH is a very impersonal place. I would tell you that in the almost 30 years that I have been here the only person with whom I had a real social life was Ted Cooper and his family. Then, after that, with [James] Jim Wyngaarden when he became the director of NIH. I knew him very well from my days with Petersdorf when we were going to the Atlantic City to the clinical meetings. Often Jim Wyngaarden and I would go to his home on the campus and have a drink, and we also had similar interests in art.

FYE: There were other common interests that brought you together.

LENFANT: Yes.

FYE: You had known him before.

LENFANT: Yes, I knew him before, and he is the man who appointed me here [as Director of NHLBI], and we sometimes traveled together. I mean, there was a true affinity between him and me, and every so often he still calls me.

FYE: How important do you think these sorts of relationships are in building careers, that is the personal contacts and the friendships that developed?

LENFANT: I think they are very important.

FYE: You mentioned, too, that from your perspective the NIH has been a rather impersonal place.

LENFANT: Very impersonal from my viewpoint. You may find other people who would tell you, "Not so, we go and have a beer together every night, and we socialize," but I do not. That is all I can say.

FYE: Now, you must be comparing it obviously with your experiences in Washington State and Rochester, and when you were still in France, a different context and different community and different feeling.

LENFANT: Yes.

FYE: What do you think might explain that at the NIH? Is it perhaps that people live in different places and it is a bigger more dispersed population?

LENFANT: I do not know that I can comment on that. I have no idea.

FYE: You mentioned that you first lived on Battery Lane, in not the greatest place. Where did you move to? Where did you live next?

LENFANT: From there I went to a place which is actually up the Rockville Pike called Parkside. That is how it was called. It was very nice. In those days it was a development with a bunch of buildings, two or three stories. You could rent an apartment there. It was really in a park. It was very nice actually, just past the beltway. I moved out of there in 1976 to a place that I bought in Potomac, and which I sold just last year. I did not have time for it. One of the things that I like to do when I have time, and I no longer have time, is to build things with my hands. When I bought the place in Potomac, I think it was 1900 square feet. It was not a colonial style but kind of a semi-colonial style, one level with a basement. You had access to the basement on one side because it was built on a slope. By the time I sold it last year, the place was 4400 square feet.

FYE: You actually did much of the work yourself?

LENFANT: Yes, I had people do the framework but I did all the inside myself.

FYE: That is phenomenal.

LENFANT: I like to do that.

FYE: Where did you get that interest?

LENFANT: I do not know. I have always liked working with my hands. I guess that is why I was looking at surgery at one time.

FYE: But there was no one in your family that was in building in any fashion or architecture, or anything like that?

LENFANT: No, not at all.

FYE: Did you cook for yourself when you lived up in Parkside, for example?

LENFANT: Yes, I would cook for myself. Lots of TV dinners.

FYE: Swanson TV dinners?

LENFANT: Yes, I was a real expert on TV dinners.

FYE: I will tell you something about Bethesda. When I was doing the research for my book on the American College of Cardiology, I came upon a quote. It was a quotation from a cardiologist who practiced in Washington downtown. He had a vested interest in a piece of property in downtown Washington that he wanted the ACC to buy as their headquarters, so he was a bit biased. But let me tell you how he characterized Bethesda in 1965, shortly before you moved here. He said that Bethesda in 1965 was “a honky-tonk sort of town” and “was a small mainstreet town with cheap restaurants, hot dog stands, automobile dealers, cheap moving picture theaters, motels and chain grocery stores.” What was your impression when you moved to Bethesda?

LENFANT: I think it is a perfect characterization of the place. In fact, if I had known better, I should have bought lots of land here and I would be a very rich man now. The construction boom started, I think, in the late 1970s. The Holiday Inn was one of the first buildings. And it crept down toward Washington. It was really amazing. Then, of course, the building here too with the Marriott and the big tall buildings. The, how do you call that, what is the name of this building, well just across the Parkside. It is a complex. No, you would not see it from here, but if you were up on the top of this building you would see it. Just on the other side of the beltway, there is a complex of five or six huge buildings, they were apartment buildings. But I think that description is pretty accurate.

FYE: What did you do—this is a Bill Roberts kind of question—for fun? And what did you do outside of work when you first moved to Bethesda?

LENFANT: In those days I was doing lots of hiking. I have always liked hiking so I would go places to hike and then sometimes camp out. And I was spending lots of time here at NIH. Then eventually, in the very late 1970s, my companion and I bought a lot in what is called the panhandle of West Virginia. A cabin framework was built; we had a contractor do that. Then we were spending lots of time building the inside, and it eventually became an exquisite place. It was magnificent with an A frame and a loft and all that. I mean, it was really nice and smack in the woods. In fact, one of the sides of our lot was actually the border to a state park; I do not know how many thousands of acres of undeveloped land this state park with wildlife has, but it is a lot. We were going there every Friday. In those days traffic

was not what it is now, and every Friday we would drive up there. What we know today about red meat was not known then, and we would stop in a butcher place which was out of nowhere in the countryside and buy big steaks that we would barbecue on the deck overlooking that forest!

FYE: It must have been spectacular.

LENFANT: Oh, yes, and we were there every weekend. Then, eventually, it became very difficult because of lack of time.

FYE: Right. Sort of job creep where you wind up with more and more to do.

LENFANT: Yes.

FYE: More responsibilities.

LENFANT: Yes. This job is very busy. This morning I was here at 4:30 a.m., for example.

Admittedly, there was a very good reason. Last night I came back from the Middle East. I had been away for a long trip for me, actually one week, and so I woke up this morning at 2 o'clock or whatever.

FYE: Well, I assure you that I am seeing absolutely no evidence of jet lag. That is quite amazing. You have told me a little about your first impressions of Bethesda. What were your first impressions of the NIH?

LENFANT: I thought it was a great place. Clearly the culture was different, but in those days it was much closer to university life than it is now. Let me give you an example. This may sound trivial to you, but one of the problems was that I had a research grant at the University of Washington which was something like maybe almost \$200,000 a year. This was lots of money. This was 30 years ago. I had fellows



and I was concerned about leaving them, and then I also had monies from the NSF [National Science Foundation] for my adventures around the world. So Cooper said, “Okay, we will let you go back to the University of Washington every other week” or something like that. Today, for me to travel someplace, I have to make a request, it has to be signed and authorized by Building 1, they buy the ticket, they give me the ticket. It is very regulated. In those days, they gave me a card which was basically an authorization for me to go to the airline and buy any ticket I wanted and have it charged to the government. I did not even touch a penny. I would call the airline and I would say it was a GTR, a Government Travel Request, and I would make my reservation. When I would go to the airline I would give the GTR, which was basically a blank check, and I would fill it in and that was the end of it! Last year, or two years ago, one of our fellows, for whatever reason, ordered his ticket directly from the airline instead of going through the government travel agent and it was a federal case! So it is a different world.

But I can tell you the thing that was interesting, and which infuriated Jerry Green because he was kind of a conservative by the book person, was that I would be here at the NIH overseeing all that money for lung research and I was at the same time continuing with my activity at the University of Washington. He saw that as the most flagrant conflict of interest, completely immoral, illegal, and there was nothing good about it. But Cooper allowed me to do that. My transition to

the NIH was very slow and progressive, and then I created the intramural research program in the pulmonary branch.

FYE: That is exactly where I was headed. Tell me something about how that came to exist and what you did there.

LENFANT: It was very clear that the National Heart Institute could not become the National Heart and Lung Institute without having an intramural research program in pulmonary research. Even before I came, Fredrickson—now it is coming back to me—who himself was a member of the National Academy of Sciences tried to get Herman Rahn to come here to run the pulmonary intramural research program. Herman decided not to come. Then I came. One of the first things that I did was truly to have an assessment of the field and of what needed to be done. Through this exercise it became very clear that pulmonary physiology was important but there was much more to pulmonary research than just pulmonary physiology. That was actually when I began to get into problems because of one of the things I did; at that time the director of the intramural research program was Jack Orloff, who was somewhat difficult to deal with, but he was a very distinguished kind of man. He died about 10 or 12 years ago. Here he is with Jerry Green.[Looking at a photograph in a book]

FYE: Oh, yes.

LENFANT: Do you know that woman? You must know her.

FYE: Yes.

LENFANT: That is Barbara Packard.

FYE: Barbara Packard. In fact, she invited me to, and thanks to you, I created a couple of booklets at this time for the fortieth anniversary.

LENFANT: Oh, yes. Barbara Packard was terrific. Here is Jack Orloff. So, anyway, Jack Orloff was the Director of the Intramural Research Division and he had a vision. Did you ever see this book here?

FYE: Yes, it is a wonderful source.

LENFANT: His vision was that the Intramural Research Program was really a state within the state. Sure the money to him was channeled through the director's office, but he would do what he damned please and this office had nothing to do with that. When I became the director of the institute, I said to Jack, "Jack, let me tell you, if that's what you want, that is fine, but don't come and ask me for any money." That changed the dynamics of things. But, anyway, when I came to the NIH, Frederickson was the Intramural Research Director before Orloff, and I convinced Frederickson—that was very easy to do—that it was a bad idea to do physiology research. I convinced him of that. There should be more than that. There was a fellow, I forget where he was from but he was one of these people who came here for training, his name was Harold Newbald, who was interested in pulmonary disease. So I created the pulmonary branch and, because I was spending lots of time in the overall management and Newbald could actually be there all the time, he was running the branch. And then, Don Fredrickson, do you know him?

FYE: No, I never really knew him.

LENFANT: He has a great vision. He is an interesting man. When you first see him you may have kind of a jerky reaction but, if you could put this first reaction aside, he was a man of great vision and great substance. Fredrickson knew that pulmonary research had to be at the cellular and molecular level, so there was a very smart fellow who was working with [W.] French Anderson. French Anderson is the man who created and conceptualized gene therapy, which incidentally started in this institute in 1984 or 1986. Under him, working in his laboratory was this fellow by the name of [Ronald] Ron Crystal. What Fredrickson did was to send Crystal, who was working on molecular hematology, to the Cardiovascular Research Institute in San Francisco for two or three years to learn pulmonary medicine. When he came back—I have to be sure that I have it right—by then, Frederickson had become the Director of NIH and Jack Orloff had become the Director of the Intramural Research Division. Jack Orloff could not wait to see me get out from being in the Intramural Research Program—I was not the Institute Director at that time, I was the Director of the Division of Lung Diseases—so we all agreed that Ron Crystal would become the chief of the Intramural Branch. I stepped down. Every so often I would go there, but I was no longer responsible for anything. That must have been 1976 or 1978, something like that.

FYE: I think it was a little later. Let me just get the dates straight. I have jotted some of this down. I am sure I will get back in sequence with you. I am not sure I can jump far enough ahead to catch up but let me try to fill some of the gaps in terms of our discussions of your earliest years at the NIH. Thinking now of the 1970s, we

talked a little about this. You were appointed to direct what was being called the collaborative research of the institute.

LENFANT: That is right. That is what I just mentioned. This was where the contracts that Peter Frommer and Frank Hastings and the blood man were managing were housed.

FYE: Those were the contracts for you.

LENFANT: Yes.

FYE: Do you mean your position?

LENFANT: No. These programs instead of giving grants were issuing contracts.

FYE: Okay.

LENFANT: The MIRU was a bunch of contracts. I mean, the government contracted with the universities to develop myocardial infarction research units, and Peter Frommer was in charge of that. What Ted Cooper did was to put me in charge of all these things in addition to being the Associate Director for Lung Programs.

FYE: What was the difference in terms of the programs that used to give grants and those that gave contracts? How did they differ? How were the expectations for the institutions different?

LENFANT: I can tell you. The real name of a grant is the grant-in-aid. That is, you have an idea, you send an application and it is reviewed, and if the process thinks that it is a good idea then you receive a grant. It is basically a gift from the government for you to do something that you have said you would do. In those days, people would receive a grant and they would send back a report each year. Now a little more is

required, there is a little more oversight and things like that because of the Congress requesting it. Now, for a contract, we say, "The government should create a myocardial infarction research unit." So I issue an announcement which says, "The government is interested in building a myocardial infarction research unit. If you are interested in doing this, send us a proposal." Basically, the best bidders are going to get it. That is a contract, but there is tremendous oversight on our part. If you tell me that you are going to see five cases a week and you get only three, I am going to come after you and say that I am not going to pay you.

FYE: When did the use of contracts develop, because, as I understand it, it was pretty much grants up through the 1960s.

LENFANT: I do not know when the first contract started nor do I know where they started at the NIH.

FYE: Were you involved at that early point in developing some of the concepts for contracts?

LENFANT: No.

FYE: Where did that come from?

LENFANT: Cooper did not ask me to develop the concepts. He asked me to be sure that these men, Frommer, Frank Hastings, and whoever, were, first of all, not pushing the community around. This is why contracts had such a bad name here. When contracts started, employees of the government were acting with researchers as if the researchers were building a bridge or an airplane or a tank, or something like that. If they had said that they would use 25 screws to do something and they

used 30 screws, then that was a breach in the contract. There was a little bit of that attitude.

FYE: It was somewhat of an adversarial relationship.

LENFANT: Yes, very much so, especially in the artificial heart program. Frommer was having a very nice rapport with investigators, but for Frank Hastings, who was developing the artificial heart, it was a Manhattan-like project to build bridges and airplanes and things like that, and the community was infuriated. They were so mad that Cooper said to me, "I am going to make you the Associate Director for Collaborative Projects, and you are going to oversee that and make sure that I do not have all these complaints all the time."

FYE: So he valued your people skills, your ability to communicate.

LENFANT: I think he wanted to have somebody to be a buffer between the offenders and him, to be a buffer from this man. Frank Hastings was a real loose cannon, and the community was up in arms all the time. It was very interesting.

FYE: What were their complaints? What were some of the things that frustrated them? These were, I assume, biomedical engineers and surgeons.

LENFANT: That is right.

FYE: The DeBakeys and people like that.

LENFANT: Yes. If they had said in signing their proposal that they would have a functional artificial heart in six months and if it was not there in six months, then Frank Hastings would say, "Time, you get no more money." That was the end of it, and he would cancel the contract. And, of course, you know how it is in a university,

all these men were receiving their money just like... For example, do you know [James] Jim Weber in your place [Marshfield Medical Research Foundation].

FYE: Yes.

LENFANT: He has a contract. He is supposed to do, I do not know how many, thousands of genotypes in a year. Assume that he does not reach that number, and I would say, "Fine, cancel the contract." Well, I do not know how many people are working with him there, but you can imagine the storm that this would create.

FYE: Sure, lots of people depending on that income and building their laboratories and designing their lives around this contract, and then, if it is gone, obviously there would be tremendous chaos.

LENFANT: Yes. And Hastings would do that all the time. I mean, the man was just tough. Eventually, he died. Not while he was here. I think it was after he finally quit. There was another man, too, who was working with him, and they were always fighting like dogs and cats. It was an interesting time.

FYE: There must have been some fairly powerful and influential academics who were perturbed by that and called Ted Cooper.

LENFANT: Yes. I can tell you that one of the outfits developing that artificial heart was in Utah . . .

FYE: With Kolff, was it?

LENFANT: With Kolff, and Senator [Orrin] Hatch was very protective. Then the other one was in Boston, where [Senator Edward] Kennedy was just as protective.



FYE: In other words the senators were being advocates for their academic centers and saying, “Don’t behave like that NIH, these people have started something and we want it to continue.”

LENFANT: Yes.

FYE: You might want to comment on—we have not gotten to this yet, but it is interesting that you have brought it up—the role of politics in the NIH programs in the early years when you first got to Bethesda and into this Washington orbit and understood that the NIH was not a totally free-standing entity and that it was a government agency.

LENFANT: That did not bother me or even impact upon me until I became Director. After I became Director I got into some pretty bloody messes, I would say, for political reasons. The two most significant actually were when... The first one was when I became Director. The artificial heart program had been going on for years, and we still did not have the artificial heart. So I decided to decrease our commitment to this program, and that was when I personally got into a big to-do with Senator Hatch. It was Senators Hatch for Utah, [Howard] Metzenbaum for the Cleveland Clinic, and Kennedy for a company in Massachusetts. I had to meet one day with the three of them, and I did not budge. I cannot remember what they wanted. I think they wanted me to give their places more money, or even continue this program, and I met with the three of them in the Senate. Boy, this was a pretty rough meeting. And I stood firm on what I wanted. So much so that, several days later, the draft of a bill was introduced by the three of them that was taking away a

very significant power from NIH. I cannot remember the details of that, but we could find it somewhere in this place. Wyngaarden was very nice about it. He said, "Claude, we have got to be careful." I cannot remember what it was taking away, but I am sure Peter Frommer would remember it. But it became a big to-do, and it became public. There was even an editorial in the *Washington Post* or the *New York Times* which was talking about the dispute between Dr. Kennedy and Dr. Lenfant. A real doctor!

FYE: Fascinating. About what year would that have been?

LENFANT: That must have been 1984, something like that.

FYE: So you ran afoul of the political system where they were looking after interests in their districts and were trying to influence you, obviously.

LENFANT: They did actually. I had to back off because . . .

FYE: Too much was at stake?

LENFANT: Too much was at stake. So that was one encounter. I had another encounter, too, with the senator from Arkansas because there too we wanted to terminate a contract that was not producing. They were clearly unhappy, but there was no threat of retaliation, and so I won that one. I mean, they had no choice. The contract called for the recruitment of I do not know how many patients and, in fact, maybe only two or three had been recruited. It was clearly not working. Then the third encounter with the politics was when we closed down the clinical trial which was looking at the anti-arrhythmic drugs.

FYE: CAST [Cardiac Arrhythmia Suppression Trial].

LENFANT: CAST, yes. Do you know the book that has been written on that?

FYE: Is it by Moore?

LENFANT: Thomas Moore. He presents me like a national hero.

FYE: I will have to look at that. I have the book and have looked in it, but I have not read it.

LENFANT: Oh, you should read it. In fact, I was looking at it the other day. I was just rearranging things, and I saw the book. The author really had some very nice comments about me, which contrasted so much with the comments he made about me in a previous book on blood cholesterol in which he accused the institute of having, what is the word when you have a conflict of interest with the drug industry, the contrary of a collusion. I mean, we were all in the same bed, what is it called, the word escapes me. He accused me of being in bed with the drug companies.

FYE: Conspiracy?

LENFANT: Conspiracy! It was a conspiracy of the National Heart and Lung Institute. In fact, I think the book was called the cholesterol conspiracy or something like that. So, it was interesting. Someday I shall write my memoirs on all that.

FYE: You should .

LENFANT: But nobody would read it!

FYE: At least, there will be an outline for you to build upon when we are finished with this interview process, but it points out that you have many publics in your position, particularly since you became director. You obviously relate to the

research community, to the academic community, to the government, to the NIH structure, and to HHS in a smaller governmental sense, and to the media. You have all of these different publics that have an interest in what goes on at NIH..

LENFANT: I had another thing happen, too, which was quite interesting. Do you know there was a fellow by the name of Donald Kennedy who at one time was the Commissioner of FDA, and he actually became the President of Stanford.

FYE: Not long ago?

LENFANT: It was during the last 15 years or so—actually, he left his position at Stanford—but, again, it was about the artificial heart. We had a multi-site clinical trial whose purpose was to evaluate LVAD, some of these left ventricular assist devices, and Stanford was one of the sites. There was an agreement, which was in the contract actually, that they could not publish their own data. It had to be a collective publication from all the centers. There is a very good reason for this, because if, in a multicenter study, one of the studies has results which, for whatever reason, are at variance with the totality of the data and if it is published before you have a publication that includes the data from all the centers, there may be a contradiction. So we had a clause in the contract with Stanford and every one else which was preventing individual publication before the pooled data was published. Well, Kennedy took me to court for that, and it was Stanford against me and the Department. At that time, the Secretary of the [HHS] Department was [Louis] Lou Sullivan. That was during the Bush administration.

FYE: Louis Sullivan. Right.

LENFANT: Yes, he was the Secretary. So it was Stanford against Lou Sullivan and me. And the Justice Department said that they would fight for us. Then Bush lost the election and when the Clinton administration came in, they said, "No contest on our part," and the suit was canceled, which, I think, was a terrible mistake. Now we have reworded the clause in such a way that it makes it very difficult to challenge us, but people can challenge us, and it is a real problem. I mean, basically, what I see there is not the prerogative of the government but the fact that sending out conflicting messages on one issue being investigated would lead to diminishing in a way the impact that a clinical trial can have. I tell you, after so many years I would say that one of the tragedies of the research enterprise in this country and elsewhere, actually, is that the gap between what we know and what we apply is becoming bigger everyday. To present conflicting data because one group is at variance from the other groups could contribute to widening the gap. I feel very strongly about it.

FYE: There is a certain trust that has to exist between the research community and the public, isn't there?

LENFANT: Yes. And if you create a situation where a clinical trial is likely to have less impact or to be ignored, basically, it means you have wasted millions of dollars in the support of the trial. So I think the implications are way beyond the issue of publishing one's own data. I mean, there is a public dimension here that I thought was very important, but the Clinton administration decided not to take this on.

FYE: What were the dynamics of this? They basically said that they would not participate in the suit?

LENFANT: They made that decision in the Department of Justice and said, “We won’t fight the suit.”

FYE: Was it settled?

LENFANT: Yes, it was settled. We had no choice but to back off.

FYE: I see. So it was a matter of principle but, because of the changing political scene, you did not have anyone supporting the principle from the Department of Justice.

LENFANT: That is right. But I am no lawyer, I could not go defend the case. .

FYE: That is interesting. Tell me a bit more . . .

LENFANT: Yes, I can tell you another event like that which is very interesting. Years ago, there was a physician in California by the name of Benjamin Winter who had gotten the idea that if he removed the carotid body then he would alleviate the symptoms of emphysema. His story was the following: that by removing the carotid body he was eliminating the response to hypoxia and there was no longer hyperventilation and no longer dyspnea. Do you follow me?

FYE: Yes. It is curious that . . .

LENFANT: The only problem was that many of his patients were dying from CO<sub>2</sub> retention, but it did not matter. Dr. Winter and some of his patients filed suits against HCFA [Health Care Financing Administration], because it refused to reimburse the procedure as it was unnecessary and unproven. HCFA asked me to go testify on their behalf in California. I sat on the stand, and at the time of the cross

examination, the lawyer for HCFA referred to me as Doctor Lenfant, and the lawyer for the plaintiff referred to me as Mr. Lenfant. That was fine, it did not bother me, but, after half an hour or so, the plaintiff's lawyer said, "Now, Mr. Lenfant, do you have a license to practice in California?" And I said, "No." Then he turned to the judge and he said, "Your Honor, I would like you to order the arrest of this man because he calls himself Doctor of Medicine which is illegal in the state of California if you don't have a license to practice in the state." You should have seen my reaction! I was stunned. Then the judge, who realized what kind of idiotic situation it was, turned to the lawyer from HCFA and said, "Mr. Whatever, would you agree to withdraw or cancel the testimony of your witness?" The HCFA lawyer looked at me and he saw that I was a little unhappy about what was going on, and he said, "Yes, your Honor." As I was the only principal witness, the suit was dismissed.

FYE: Amazing.

LENFANT: I mean, that was amazing.

FYE: At least you were allowed to leave the state!

LENFANT: Yes, without being arrested. In fact, the lawyer said to me, "You are lucky, the guy could have made a citizen's arrest, even before you got to court."

FYE: How bizarre.

LENFANT: You have to admit that was pretty bizarre.

FYE: I would say. I wanted to ask you if you could just say a little about clinical trials. When did the Institute get involved in clinical trials and what the motives might

have been? What were the hopes, what was the expectation, and how would this contribute to the expansion of knowledge?

LENFANT That started long before me, actually. I think this Institute really created clinical trials. In the 1950s and early 1960s there was a group, it may be in that book. There were some fellows—I do not remember their names but we could find that out if that is what you are interested in—who were biostatisticians, and they really created the concept of biostatistics. One of them, I remember, was not even an M.D. or a Ph.D., but he was a brilliant mathematician. So they created a unit of biostatistics here and that led to the development of a number of clinical trials. One of the most famous, actually, was the Coronary . . .

FYE: Drug Project

LENFANT: Drug Project. I think that was the very first clinical trial in this country. We could research this too if you are interested, but I really think it was. This grew into a number of activities. Of course, this group of biostatisticians was also associated to the Framingham study. You know [William] Bill Kannel, do you know what the name of the man before Bill was? [Thomas Dawber]. Anyway, there was Bill Kannel, Bill Castelli, Dan Levy now, and they had been a team in Framingham. But here in the Institute there were some people who were very well known. Manning Feinleib, does that name...

FYE: No.

LENFANT: Actually, he became the director of the National Center for Health Statistics.

FYE: His first name was Manning?



LENFANT: That was his first name. But it was part of the Division of Heart and Vascular Disease. I thought that the statisticians should be taken away from this division because it was too important for the future of medicine. I felt very strongly about that, and so I created a Division of Epidemiology and Clinical Applications which I split from the Division of Heart and Vascular Disease. Boy, I was the Director, but I thought the staff were going to shoot me on sight for it. The first director of the new Division was a very smart man. I do not know if you know him; his name is [William] Bill Friedewald.

FYE: No.

LENFANT: Bill Friedewald is the one who developed the Friedewald formula to measure the HDL [high-density lipoprotein] in the blood.

FYE: I have heard of it.

LENFANT: So he was the first director of that division, and by then Jim Wyngaarden was the Director of the NIH. I was pretty mad actually when they took Bill away from me, but Jim took him away to create the Office of Prevention in the Office of the Director. Bill was in the Corps and he had hoped that he would get a flag rank, but he never got it so he finally left the NIH to become the Medical Director of the Metropolitan Life Insurance Company. Bill was followed by [William] Bill Harlan. Bill Harlan too was taken away from me by Bernadine Healy after Bill Friedewald left his position in the Office of the NIH Director to take the position at Metropolitan. So I went for a third director who is Larry Friedman, whom we

mentioned earlier. However, Larry Friedman is stepping down now so I will have to replace him.

This is the continuation of the third oral history interview with Dr. Claude Lenfant, Director of NHLBI, on 8 December 1999, in Bethesda, Maryland. The interviewer is Dr. W. Bruce Fye.

LENFANT: Who created the methodology for clinical trials.

FYE: Felix Moore.

LENFANT: Yes, he was the first Director of our Biometric Branch and I believe clinical trials really started here in this Institute. And I have always thought that clinical trials are absolutely critical to what we do. The problems that exist today are basically twofold. One of the problems is that they are getting to be very expensive. We are now starting a clinical trial on diabetes and the cost is \$120 million, so we are talking about big money. The second thing is that the people who are interested in clinical trials, they are, how would I put it, a little bit [obsessed? narrowly focused?], and they think that the Institute should only support clinical trials. So it is interesting. I am a great supporter of clinical trials, but I think one should have a balanced program.

FYE: Talking about a balanced program, thinking back to the early 1970s, to 1972 in particular, when you became involved in creating the lung part of the program, what did you want to see created here and then what was created here as a result of your ideas?

LENFANT: I had two things in [mind]. . . What you should know is that the first thing that I did when I became the Director of the Lung Division was to call upon the community so that there was a free exchange of views and ideas. In fact, the person that I asked to chair that [task force] was Dickinson Richards, whom I knew from when I was at Columbia. I visited with him, he was retired, and he had accepted to do it. Then he died shortly after that so I had to call on somebody else, and I actually called a man from Columbia University to do it. Anyway, it was a task force on respiratory disease or something like that, and [the report] it [produced] became a very powerful document. I would say that what is being done today you could find it in this document, maybe in different words, but the ideas are there. There were two important things in it. One was to initiate the program of basic research, which was very competitive, and I would say that that has happened. In fact, I would say that for a time the novelty of basic research at the cellular and subcellular level was much better in the lung program than it was in the heart program. Now the heart program is just as good, probably with more molecular genetics and genomic research in the vascular program. But if you looked at the portfolio [that was there] when I became Director, there was very little in molecular genetics in the cardiovascular area. I take some credit for having moved that to that. In fact, I wrote some editorials which got lots of people mad, especially physiologists. The second thing was to do some clinical research and that, I think, has not happened. The lung community is just not doing good clinical research except in one area, asthma. But, elsewhere, it is very slow. For a

while it did very well in neonatal respiratory distress syndrome, not the blue babies with the congenital heart defect, but in the neonates.

FYE: The syndrome that the Kennedy baby died from.

LENFANT: That is right. And there some spectacular work has been done. In fact, in 1970, the death rate from that disease was 50-60,000 premature infants each year. Now it is down to 5,000 a year.

FYE: Hyaline membrane disease.

LENFANT: That is what it is. Then there was a tremendous empty hole until the asthma research started, but short of that it is not doing very well.

FYE: Why do you think that is? Why do you think there is a lack of research?

LENFANT: It beats me. I do not know.

FYE: Cardiology for several decades, but mostly in the last 25 years, has really exploded in terms of clinical research, and you are pointing out the disparity [in such research] between cardiology and pulmonary disease which was your own original field.

LENFANT: Yes. I think that pulmonary clinical research has no muscles. There are a few things here and there. I have an opinion--it is not a very politically correct opinion but I may tell you, anyway. I think that all of the business about smoking and smoking cessation has set back [pulmonary] research for 15-20 years because basically all that people were talking about was [the problems caused by] smoking, so let us work on smoking cessation. That has dried up new ideas and nothing really happened. But I would tell you that now there is something that is

happening. There is a change and in great part it is due to our still current division director in the lung division who unfortunately has resigned.

FYE: What is his name?

LENFANT: It is a she.

FYE: I am sorry.

LENFANT: Susan Hurd

FYE: Yes, Susan Hurd. I do know the name.

LENFANT: She is in that picture there. Where is she? She is somewhere in there. Anyway, she is leaving at the end of the year. There it is.

FYE: Yes.

LENFANT: So that is changing. There is a real movement to bring clinical research to the forefront. It is interesting. In a way, as I mentioned earlier, the basic research has been very successful, but there was a disconnect between the translation of this basic research into [the clinic]. In the heart business it is slow, but it is happening. In the lung I do not think it was happening, but now it is beginning to pick up. I would say that, in five or six years from now, we will see much more translational research.

FYE: Is part of it the fact that there are just so many more people doing clinical research?.

LENFANT: In the heart, yes.

FYE: It is a self-fulfilling prophesy, but it seems to me that there are just so many more people who for a variety of reasons got an interest in it.

LENFANT: That is right. I mean, cardiologists have existed for at least 50 years. The longer the specialty . . . do you know that the board for cardiology has been in existence for 30-40 years?

FYE: Longer even, yes.

LENFANT: Okay.

FYE: Since before World War II.

LENFANT: Okay. The pulmonary board started, I think, 20 years ago.

FYE: So just as a specialty to have an identity as a group of people that have an organ system in common . . .

LENFANT: It was infectious disease and allergy.

FYE: And as you pointed out in our last interview even today many of the pulmonary physicians are sort of diluted because they are intensivists.

LENFANT: Yes.

FYE: I mean, their identity is not even purely lung . . .

LENFANT: Do you know why they did that? They did that to make money because they concluded that there was no money in pulmonary function [tests?]. In cardiology each time you see somebody, it is an EKG [electrocardiogram], it is this thing, perhaps an echo [cardiogram] and what have you, and all that makes money. It is the cash register works. In pulmonary medicine, pulmonary function makes no money so they shifted to becoming intensivists and emergency [physicians?]. . . like the emergency, what is the name, acute care. Do you know the man who started that? That is an interesting bit of history. It really started in Boston. There

was a fellow by the name of [Michael] Mike Laver. He was an anesthesiologist. And Mike died, I cannot remember whether it was from prostate cancer or melanoma, but he died many years ago. But he is the one who introduced blood gas measurement in this country. I mean, he really did. He must get the credit for that. That was what got all the pulmonary physicians excited to realize that there was more money in getting arterial blood oxygen and CO<sub>2</sub> than in doing pulmonary function.

FYE: And certainly more than in just talking to patients.

LENFANT: That is right. That is what brought them into the [emergency rooms], because what is the best place to do blood gas measurements! It is emergency rooms and acute care and that kind of thing.

FYE: Where you can rationalize doing them frequently.

LENFANT: Yes, sure.

FYE: It is interesting how these different technologies have driven specialty development, but then reimbursement helps drive the specialty development as well, because if there were no reimbursement for any of these things there would be much less incentive for people to devote their careers to these various specialties.

LENFANT: Yes. It is interesting to see the evolution of all that and the changes that have occurred over the years.

FYE: And you, of course, with your background in open heart surgery at its very beginning, had the opportunity to see the evolution of very nearly all of modern cardiology and cardiovascular surgery.

LENFANT: I do not know. I am probably distracting you there from your [questions].

FYE: Not a bit . . . we have many hours.

LENFANT: Today people think nothing of measuring oxygen saturation or PO<sub>2</sub> in the blood, I mean, oxygen tension. Maybe in your practice you do that 25 times a day. Anyway, people do that all day long. The man who invented the oxygen electrode to measure the PO<sub>2</sub> was a pediatrician at the University of Cincinnati, his name was Clark, he was a very good friend of mine. And when I was a fellow at the University of Buffalo, I did extensive work on the PO<sub>2</sub>, the oxygen electrode.

FYE: What was his name?

LENFANT: Clark. I cannot remember his first name. I have the feeling that it was Leland Clark, but I am not so sure about that.

FYE: But how one innovation can change...

LENFANT: Yes, I can tell you it had tremendous impact on my own life!. Clearly.

FYE: How did it?

LENFANT: Because until then all you could do was to measure the oxygen content using the Van Slyke instrument. Do you remember that?

FYE: It was pretty cumbersome.

LENFANT: You had to move the mercury bulb up and down, and he [Clark] came up to that to measure the oxygen tension. The potential of that was just fantastic because it



would allow you to do oxygen dissociation curves. That was the reason why I got involved in organic phosphates in the blood to measure the impact of that on the oxygen dissociation curve. Then, of course, that opened up the way to measuring changes in the heart and things like that. It was fantastic what he did. For me personally it really led me on my own research, and I became interested in CO<sub>2</sub> and in nitrogen and all of these things. You make me dig into my past here, which I do not do very often!

FYE: It is marvelous that we have the time free to do these interviews and that we are actually able to document some of this. Because that work was not long after the open heart work. It was sort of the next step in your early career, wasn't it?

LENFANT: It was the next step.

FYE: So had that not come along . . .

LENFANT: In fact, I would venture to you today that when open heart surgery [began] nobody knew how to measure oxygen tension in the blood. Nobody knew how to do that. People were measuring the oxygen saturation using devices where there were lights going through the blood. I mean, very cumbersome systems.

FYE: Let me bring our discussion forward from that point but quite away backward from the present. Thinking about the National Heart, Blood Vessel, Lung and Blood Act of 1972, that would have been very shortly after you got here to Bethesda. It was signed into law by President [Richard] Nixon in the fall of 1972, and, as is typical of that sort of legislation, it was introduced by a statement about the impact of cardiovascular disease on American society, the cost if you will,

both in terms of numbers of deaths and then the financial cost to the U.S. economy. In 1972 they introduced that legislation by saying that if cardiovascular disease could be eliminated it would extend life expectancy by about 11 years and would save the U.S. economy about \$30 billion each year through reduced health care costs and also through increased productivity. In the same legislation which was again the Heart, Blood Vessel, Lung and Blood Act, it also mentioned that chronic lung disease affected 10 million Americans and stated that it was the fastest rising cause of death in this country.

LENFANT: That is correct.

FYE: That 1972 act gave the National Heart and Lung Institute a very broad charge, and it said this is what we think you should do to deal with this major public health problem and also fiscal problem for that matter. What do you recall of your thoughts about that act? When it passed, what did it mean to you?

LENFANT: I recall that very vividly, but what you probably do not know is how that act came about. That came about because Nixon, as you know, had passed the legislation creating the Cancer Act and that had elevated the [National] Cancer Institute to a bureau status. I mean, in the government hierarchy you had agency departments, agency bureaus, divisions and branches. Now NIH in those days was made up of a bunch of institutes which were equivalent in that the Congress or whoever had agreed to call them institutes, but, in fact, in the hierarchy they were divisions. So we were going from the agency that was the NIH to divisions and nobody was a bureau which was the step in between. What the Cancer Act had done was to

elevate the Cancer Institute to the status of a bureau from being a division, and Cooper was very upset by that. He thought that if that was good for the Cancer Institute it had to be good for the National Heart and Lung Institute. To get support for that, he lobbied very hard with the [American] Heart Association and the [American] College of Cardiology, which I should tell you were very unresponsive. I attended some of these meetings. They were very unresponsive, and also, of course, [there were meetings] with the lung community, but it was so small that it carried no weight. So Cooper had the great idea that he should get additional support and I think he made a deal with the blood community by saying, "If you support us then we will put the blood name on the institute." And they said, "Okay." So the Act was passed but somehow it was watered down because Nixon was already running into lots of problems. It elevated us to the level of bureau, but it did not give the National Heart, Lung and Blood Institute the authorities and special things that the Cancer Institute had, not least the director being a presidential appointment. You see the Cancer Institute director is appointed by the president. There are only two positions at the NIH, the Director of the NIH and the Director of the Cancer Institute which are appointed by the President. Cooper very much wanted NHLBI to have a director appointed by the President as well, but that did not pass. But we got the status of bureau, and that was what allowed the Institute then to be broken down into divisions, the blood, the lung, the heart, and the extramural affairs, whereas before they could not be as they were programs. Do you understand?

FYE: Yes, everybody sort of moved up a step . . .

LENFANT: That is right.

FYE: It carried everything up, everything moved up one step.

LENFANT: So all the other institutes were mad as hell!

FYE: Just as your Institute had become frustrated by the Cancer Institute, everybody else was jealous of the status of NHLBI.

LENFANT: That is right. And over the years we saw all these institutes becoming bureaus and now all the institutes have divisions, but, in those days, that was not the case.

FYE: So everyone was playing catch up.

LENFANT: That is right. But my reaction to all that, I thought it was great because it would give a new visibility to the Institute and the lung programs but now there was a third partner which was the blood division and what would have happened if Cooper . . . and another factor by then was that the secretary of the department was Weinberger

FYE: Casper Weinberger.

LENFANT: Casper Weinberger, and he liked Cooper very much. So the assistant secretary for health was a fellow by the name of [Charles] Charlie Edwards, and Weinberger wanted Cooper to become the deputy of Charlie Edwards. He probably knew by then that Charlie Edwards was going to leave the government, but we did not know that. So Cooper went there [to HEW] as the deputy assistant secretary for health, and when Charlie Edwards left, Cooper became the assistant secretary for

health. By then he had lost interest in NHLBI, so to speak. He was more interested in . . .

FYE: What went on downtown.

LENFANT: Sure, the bigger politics. It was very interesting because at that time my two years [leave of] absence from the University of Washington was just about to end and the University of Washington was saying to me, “When do you come back?” So I discussed that with Cooper, and Cooper said, “Oh, don’t go back, I’m going to be here, don’t worry, everything’s going to be great.” And I really liked Cooper, so I resigned from the University of Washington, and six months later Cooper . . .

FYE: Was gone.

LENFANT: Yes.

FYE: So then your life was less predictable.

LENFANT: Yes, that is right.

FYE: You mentioned that Casper Weinberger liked Cooper. It gets back again to the concept of how important personal relationships can be not only in terms of appointments in which they can be critical but in terms of someone’s success within a position if they have a patron or someone that supports them or encourages them as opposed to someone who does not. Do you want to give me your thoughts on that?

LENFANT: I think it is very critical. Even now you see it, for example, in [Harold] Varmus leaving. Varmus has his friends, people to whom he talked more often. I am not one of them, and you see that in the dynamic of the whole place. It is very

interesting. It is very important of course to . . . I mean . . . there has not been bypassing processes [?] and all that but you are on the radar screen, you see that is what it is. If you are on the radar screen, people see you.

FYE: That is a very important point. You mentioned earlier that Ted Cooper wanted the Institute director to be a presidential appointment.

LENFANT: Yes.

FYE: Why would he have wanted that? I would have thought that that would have made the position less stable and there could be potential turn-over every four years.

LENFANT: Yes, but he had seen what status it gave to the director of the Cancer Institute. For example, the budget bypass means that the Director of the Cancer Institute can submit his budget to the President directly without going through the Secretary.

FYE: I see, because they are on sort of an equal plane, the President appoints the Secretary, the President would appoint the Director of the National Cancer Institute, so there is no point in . . .

LENFANT: Yes.

FYE: All right, because it was unclear to me what the trade-offs might be, but surely there is some risk if you are thinking of a scientific enterprise. There is the budget piece which is critically important but there is also the consistency piece and theoretically with the presidential appointment you could have a different person in charge every four years.

LENFANT: Absolutely. But I can tell you that I am convinced that what Cooper wanted did not happen because of the complete lack of interest of the American Heart

Association and the American College of Cardiology. Cooper and I were really good friends, and I remember in particular going to a meeting of the Heart Association which was at Anaheim. In those days, let me tell you, institute directors, or an employee if authorized by the person above them, could travel first class, which is no longer the case! One day, Cooper said to me, "Why don't you come with me to Anaheim." I had no contact with the American Heart Association. He said, "We can talk on the plane. Why don't you travel with me first class and then we can talk on the plane." Then we had a great comeback on the red eye special. I was there in Anaheim for one or two days. In those days the convention center did not exist, the meeting was at the Disneyland Hotel.

FYE: Very small.

LENFANT: Yes. And there was a reception which was called the president's reception. I remember going to that reception where all these guys were drinking and having a good time smoking like crazy, and Cooper was clearly politicking. In the evening, so that we could get our plane in Los Angeles, [we] left and I went with them. During the whole trip back, on the red eye special, Cooper could not find anything good to say about the American Heart Association. The relationship between this institute [NHLBI] and the American Heart Association has never been very good. My personal experience is that I have had a much better relationship with the College than with the Heart Association. It is very interesting. This morning actually I met with the American Heart Association. The current president is okay. We will see how that will go.

FYE: It was very coincidental that as I was getting on the elevator to come to your office this afternoon that whole entourage was getting off. I do not know where they had been since they saw you.

LENFANT: After they saw me from 11 to 12:30, they were going to lunch and then they were going to the Neurology Institute [National Institute of Neurological Disorders and Stroke] which is three floors [above?] here.

FYE: It strikes me, of course, that the American Heart Association existed before the NIH existed in its current structure.

LENFANT: Not the voluntary part.

FYE: No, that was 1946-48, and that happened essentially at the same time . . .

LENFANT: Yes. The same time.

FYE: . . . is the point you are making. But they were sort of self-confident and self-assured in 1948 whereas, of course, the National Heart Institute was getting off the ground. But there are lot of strong personalities that have existed. I wanted to go back, in fact, and ask you about the different acts--you led into this very well. It has to do with the 1972 Act and later similar acts that came from Congress attempting to reinvent the Institute and expand its mission perhaps or to amplify its resources . . .

LENFANT: That was at the time of the authorization, you see, at the time of the re-authorization. By then [Robert] Bob Levy was the director. I think it happened a couple of years later or something like that.

FYE: There was another act in 1976.



LENFANT: Yes, that was the re-authorization. We are authorized for three years. The first act was 1972 or 1973?

FYE: 1972.

LENFANT: So it probably lapsed, but the institute was authorized for three years and, as is often the case, there is the lapse of re-authorization and so it was re-authorized in 1976. Levy worked very hard to get some different authorities or responsibilities. I mean, Levy was a fighter. He also ticked off lots of people, but anyway. Now, there is still an authorization which is passed from time to time. I can tell you that right now we have not have an authorization for the last three years. Yes, we do not really exist for the last three years.

FYE: Sort of running on credit or something like that?

LENFANT: That is right. Now we do our business on the basis of the public health authority but no longer the National Heart, Lung, and Blood Institute authority.

FYE: What I wanted to ask you was that we were talking about these different entities that affect the work of the Institute, its mission, and the like. I am going to list them and then maybe you could reflect on each of these [in turn]. First, the executive branch of government which, of course, is the President and the HHS secretary; second, the legislative branch of government--the Congress, congressional committees, the appropriations committee that has a major impact on the budget; third, voluntary health organizations--the American Heart Association, the American Lung Association--that have their own agendas,

interests and activities; fourth, certainly the biomedical research community, both the intramural scientists that are here [at NIH] and the much larger community of extramural scientists sprinkled throughout the whole country in hundreds and hundreds of institutions; and fifth, vocal influential citizens. I have seen at least two pictures of Mary Lasker on the wall. She was the prototype of the involved and active private citizen, I would think.

LENFANT: Yes.

FYE: And then we mentioned the media earlier. So you have all of these different groups or individuals . . .

LENFANT: But some are much more important than others. In fact, it is almost inversely related to the exact real authority. For example, the President. I have no recollection whatsoever of the President sending the word that it shall be that I should do something. The only thing that I can identify was that a few years ago the White House had tremendous interest in the public's access to the defibrillator.

FYE: This would have been during the Clinton administration?

LENFANT: Yes.

FYE: That is a fairly recent thing.

LENFANT: I think they were pushing for that because [Michael] Mike Weisfeldt--do you know who he is?

FYE: He was at Hopkins when I was there.

LENFANT: That is right.

FYE: He recruited me to Hopkins as a fellow.

LENFANT: I see. Mike really has been the champion of that. I am not in the purview of all the hanky-panky he did behind the scenes, but I think that he got to the White House and sold them the idea that it would be a good political event to make an announcement. So there was some, I would say, modest pressure, but that was deflected. Let me think, yes, I just cannot think of anything else.

FYE: You know this is even before your time in the United States and it was when I was certainly too young to notice such things, but I wonder about Dwight Eisenhower's heart attack. It is hard to imagine that that did not stimulate his interest in heart disease and certainly the Institute was fairly young at that point.

LENFANT: Yes.

FYE It was only 7 years old, and I am sure there would be a paper trail and a legislative trail that would give clues about this.

LENFANT: All I can tell you is that I am not aware of anything that came to my attention. Now going down your list, the department [HEW], of course, has more impact and at least [did so] when Mr. Richardson was the Secretary.

FYE: Elliott Richardson?

LENFANT: His father had a stroke, and that was what led him practically to order Cooper to start the National High Blood Pressure Education program.

FYE: That is fascinating. I am sure there was a context to that. So there was a background noise and interest in the program, but you are saying that that event was a catalyst in terms of moving that program forward.

LENFANT: Yes, I think it was more than a catalyst. As I know Cooper, there was no opposition to that. Cooper was very humanitarian. I mean, he believed in taking research to the bedside, so to speak. So that is one example. There was another instance when Bernadine Healy was here which sadly backfired on the Institute and against me. Bernadine and I did not get along very well. She was a very strange lady. I could never figure out why the College [of Cardiology] gave her such a distinguished award as they gave her. I thought that was just a big joke. I can always remember when she got it and I just could not believe that, but anyway. What happened was that Louis Sullivan was the Secretary [of HHS]. I knew him very well, we were on a first-name basis, and we had known each other for many years, long before he was Secretary. He passed the word through all his minions that the Institute should start a study on hypertension in African Americans. So we worked pretty hard and we designed a study, which is still going on actually. It is not uniquely African American but it is a major study with 40,000 patients and half of them are African American. Of course, that study cost close to \$200 million, and it was a big, big study. Sullivan when they passed the word [of the cost] said that it should be built into the budget. So when I submitted that back it went to Bernadine Healy who saw that and said, "Where did that come from?" I said, "Well, the Secretary asked that we do it." She went berserk and

said, “I am the Director of NIH. Dr. Sullivan is not the director of NIH. How dare you do that without checking that with me.” She said, “You are going to do the study but you will have to eat it from your budget.” And I said, “Fine.” We got paid from our budget. I mean, we never got the allocation that was [made], and as I said, in fact, it is much more than \$200 million—it is probably closer to \$250 million, but we worked with drug companies and nearly half of the money comes from drug companies. But that was another example of secretarial impact. What else do I remember? I do not really remember anything else. Those were the only two that were anything. Well, going back to the White House. Mrs. Clinton had a tremendous interest in asthma. So we worked with her and so that [?] were on the secretary and the secretary did a lot, [?] and as my initiative that made Varmus a little unhappy, but that is all settled very peacefully. No great commotion about all that.

FYE: Do you have any idea why Mrs. Clinton had an interest in asthma?

LENFANT: It was a political thing, that was all. That was long before I ever heard that she would compete for the run for the senatorial seat, but there is a congresswoman in New York who is called Mrs. Lowey [Nita Lowey], who is from the Bronx and very interested in asthma because there is lots of asthma down there. She is very friendly with Mrs. Clinton and so I think that is how she got Mrs. Clinton interested. One day there was a meeting in the Bronx on asthma. We had been invited independently to that meeting and Dr. Hurd was there, and, as it turned out, Mrs. Clinton was also invited. We did not know that, and Mrs.

Clinton, when she made some remarks publicly, said, “I understand that Dr. Hurd is among you and I would like her to stand up. . .” So that tells you the way things happen with the White House. They know everything that there is to know.

FYE: I am sure. I think that Congresswoman Lowey is the person who was going to run for the Senate in New York and withdrew so Hillary Clinton would not have a contest.

LENFANT: Yes, that is right. Of course, at the time when we decided to stop the CAST study, then the White House got involved with us.

FYE: Now that would have been George Bush or before Bush?

LENFANT: That was Bush, and the link there was Quayle, because the drug company involved was in his district in Indiana...

FYE: Interesting.

LENFANT: You have to read the book. The story is pretty accurate in the book. [Which book?] Very interesting. Now the Congress does not do it directly. Once in a while there is a senator or a congressman who calls me and says, “I would like to do this, I would like to do that, or you have to do this, you have to do that,” and I usually can deflect that. That is one of the beauties of the peer reviews. They helps to deflect these things. Sometimes we have to succumb part of the way but it does not bother me. I view that as part of the system.

FYE: As part of your job, to listen.

LENFANT: I mean, we say we are a democracy and therefore everybody has a voice and some voices are louder than others, that is all. That is the way I look at



LENFANT: Well, keep one thing in mind, I have been here for a long time. Also I think I am very involved. I am not a very visible person out there. Most of the Institute Directors are much more visible than I am, but I know what is going on.

FYE: Absolutely.

LENFANT: I keep my ear to the ground. So once in a while we see a senator or a congressman that gets into the fray and wants something. I had a big to-do with another senator who absolutely wanted us to fund a program. On that one, I think, the peer review and the statistical needs for the study helped me out in a sense that that program was next in line of what we wanted to fund and then it was found that there was not enough power [?] with the patients that were available from the places to be funded. So we moved up [?] and I was glad because it got me out . . . But I can tell you who that senator is, it is Wellstone and when Wellstone has something to say, he says it.

FYE: Paul Wellstone from Minnesota.

LENFANT: Yes, that is your senator.

FYE: Well, next door, soon to be mine!

LENFANT: Yes, I had some pretty bloody discussions on the phone with him. At one time he said, "Doctor, you just crossed the line. If you do it again, you will have big trouble."

FYE: He is a graduate of Carleton College in Minnesota where both of my daughters are now students, so that is partly how I became more aware of his



name than I would be otherwise, but that is interesting. Well, all of these people have their own personalities . . .

LENFANT: But that is okay. I mean, again, I wish it would be done in a different way. Now the committees on your list there. When [William H.] Natcher was the chair [of the appropriations committee?]. . . that is the man who is there in that picture, the second from the top, from the bottom here, the one that is when you have just [?]

FYE: Oh, right there. Yes.

LENFANT: With Natcher, there were lots of earmarks which would appear in the bill. With Congressman [John] Porter, that is not the case. Porter does not do it. He really stopped that. I think it is largely due to Varmus. I mean, Varmus commands lots of respect on the Hill. Of course, Varmus is not in a mood to receive any orders from the Congress! But anyway, Porter doesn't. Since Porter has been the chair, I have had only one event where . . . well, we reached a compromise. It was the Cooley's anemia. You know, of course, what Cooley's anemia is and all these people are from Italy and the south and they have a little bit of a Mafia mentality when it comes to something they want! . And the Cooley's Anemia Foundation wanted very much that we start a clinical research network of these patients, and my position was that . . . but then [they] never submitted a grant application on research. How can we even think that they would cooperate among themselves. That kind of argument went on for two or three years, three years actually. The problem that I had was that one of the members in

the Porter committee was also of Italian descent and strongly supported by the Italian community of Boston and Connecticut and all that. So each time I was doing my congressional hearings there were some interesting discussions. They would always say, "Doctor, when are you going to create that clinical network?" I would go through my song and dance [?] . . . and eventually we reached a compromise. A compromise was reached because a friend of mine who is now the president of the Dana Farber [Cancer Institute] in Boston.

FYE: Dana Farber.

LENFANT: That is David Nathan [?]. You probably never heard of that name but David Nathan is a very distinguished hematologist. He is not Italian, he has nothing to do with it, but he is interested in monogenic blood disease, sickle cell disease and Cooley's anemia. David and I had a long association that started actually when I became director [of NHLBI] because at that time he was the president of the American Society of Hematology and the president-elect or the past president was Paul Mark [?] who is the current president of the Sloan-Kettering in New York. That is the job where Varmus is going. I started [as director] in July so it had to be before December as they always have their meeting in December. Those two came and asked to see me, and I remember they took me out for dinner at the Four Seasons Hotel in Washington. Do you know where that is? A nice place, but boy was that a bloody dinner so to speak because they wanted the institute to give greater recognition to the blood than it had during Bob Levy's [directorship] . Bob Levy really did not help our love affair with the

blood people. I said to them, “Fine, but what is your allegiance to the institute? I understand that you are telling me your story today but you are telling the same thing to the National Institute on Diabetes and Kidney Disease and whatever,” where they have a big blood program. It is not in the name but they have a big blood program. Much more than ours. Then I said, “If you go to all the institutes, why would I do something special for you?” Oh, did they get mad at me. And we stood on our position. I said to them, “I am not going to do this for you. If a grant [application] comes to us we will respond just as I respond for the lung and for the blood but do not ask me to do something special when in effect you don’t lobby for me.” Paul Mark was fuming, but David Nathan thought it was so funny actually. He probably did not expect that from me, and we developed a very nice relationship that has grown over the years. Very often he calls me to talk about things, and I call him. But, anyway, he somehow got involved and so he asked me if I would agree to have a meeting not only with some of the researchers in Cooley’s anemia, but also with the volunteers, and I said yes. What they wanted us to do was the same thing that Sue Hurd did for asthma. She created an asthma network which is an extraordinary success, and so that was what they wanted us to do. So I took Sue Hurd to Boston with me, and we talked to all these people. You see, I wanted to be sure . . . I had no problem with the network, but it was known that all these guys in Cooley’s anemia research area never worked together and, in fact, they were fighting like dogs and cats among themselves, and there was no way we could have a network unless these people agreed to work together. So that

was what I said. We gave our story, we told them how that would work, why it was necessary, and then we came back. David said to me, "I am going to talk to them." He basically got an agreement from them all that they would work together. There was an application put together and now it is being processed.

FYE: Fascinating. Now the Cooley's anemia was here in the Institute long before blood was ever attached.

LENFANT: No, I do not think so.

FYE: The reason I mention that is because in some of the reviewing that I did for this interview, I was struck to see that they did pop up several years before. I do not know how that is.

LENFANT: Well, if it popped up it is probably with sickle cell disease because there is such a similarity between these two diseases but now it has become a big program.

FYE: Much bigger.

LENFANT: Yes. Much bigger. That was kind of interesting. All that happened since the last hearing. This year when I go to testify I am sure that Mrs. Delauro is going to . . . I do not know if you follow the politics in Marshfield, but she is a real activist. She had a breast cancer and every so often she has a bunch of women fighting for breast cancer and they march up and down the street. She is always leading the charge.

FYE: She is almost like Bella Abzug. She reminds me . . .

LENFANT: Except that she is very thin, very skinny, and completely shapeless compared to that lady.

FYE: Right. Is Nina Lowey her name?

LENFANT: No.

FYE: This is a different person?

LENFANT: Yes, Rosa Delauro.

FYE: Now where is she from?

LENFANT: She is from Connecticut.

FYE: We are talking about a different person. Before we were talking about Nina Lowey. But this woman is the Cooley's anemia?

LENFANT: Yes, she is a Cooley's anemia.

FYE: I understand.

LENFANT: I am jumping too fast.

FYE: No. Well! So we talked a bit about congressional committees and they are interesting in that sometimes they are present and sometimes they are not, when you testify. What are your thoughts about that, when you go in to testify and, of course, you take a printed text which their staff and they all have access to but then you present to some or all members of the committee.

LENFANT: Yes. Nobody pays attention to the written text. It is put in the [Congressional] Record now, everything else is conversation. I enjoy it a lot, I must say. That is one of the things I enjoy most. And I think I have a good rapport with the Congress.

FYE: Do you do better with one administration or the other . . .

LENFANT: No.

FYE: I mean, do you think the Institute does better?

LENFANT: I would say in a general way that the Republicans are much more supportive of the NIH than the Democrats, because the Democrats have many more interests. The free meals, the free all, and free whatever and all of these things.

FYE: Their social agenda is much broader and . . .

LENFANT: Yes, the social agenda is much broader.

FYE: . . . takes away moneys that theoretically are non-defense moneys that could be going toward research.

LENFANT: Yes. That is why I am absolutely convinced--and personally that is not a very popular view here--but if the House goes back Democrat, which I think there is probably a pretty good chance of in view of what the Republicans are doing by shooting themselves in the foot all the time, NIH is going to have a tough time. You see the Democrats are absolutely convinced that NIH cannot spend the money wisely. You know it is a lot of money. I mean, you may not understand what I am going to say, but the budget of the Institute this year is going to be over \$2 billion. That is a lot of money.

FYE: By any measure.

LENFANT: Yes! And to spend it well requires lots of work and attention. It is not an easy thing to do, and I personally feel very strongly that we are not going to

spend money just to throw it out the window. I really am very stuffy. All my colleagues will tell you I am impossible to deal with. Too stuffy.

FYE: Well, you know the issue about how the money is spent and also Congress . . . Melvin Laird was born and raised in Marshfield, this little tiny town in which I live now, and he was a tremendous supporter of NIH.

LENFANT: Oh, yes.

FYE: He was a huge supporter of the NIH, and David Obey, who is of the other party-- Laird was a Republican and Obey is a Democrat-- has consistently throughout his career at least from our perspective out in his district been a supporter of NIH.

LENFANT: But let me tell you. He is the one who questioned whether NIH should get that much money. I mean, that may be the way he talks up there, but during the hearings he really challenges NIH and, in fact, Harold Varmus is holding a retreat each year for the Institute directors in September and two or three years ago, Obey was invited to come and talk to us, and he came. At the end of his message we all looked at each other and said, "Boy, oh boy." I mean, that message was not . . . do not interpret what I am saying as that he is not supportive of NIH, but he believes that there are other things besides NIH, and he also believes that NIH should be more accountable than he thinks we are.

FYE: That fits with my impression of him. What you have said . . . is my own personal experience in talking with him. The other thing I found whenever I have gone to his office on behalf of NHLBI funding is that he is very quick to say

he does not believe that Congress should say what the NIH should do. That should be done within the institutes . . . that the money should go to the NIH and then internal mechanisms within the NIH should decide that.

LENFANT: That is okay. Especially with Varmus. I mean, that was something that probably Varmus convinced him of. Varmus feels very strongly about that. Varmus thinks that it is his prerogative.

FYE: Do you know what it reminds me of? You said earlier that when a member of Congress calls you, you can say peer review is what keeps you from getting in the middle of that. I have just thought there is a certain analogy there where David Obey is saying, "Well, it should be a peer review thing that decides where the money goes rather than a member of Congress applying influence or a constituent trying to influence a member of Congress," so there is a certain symmetry there. It is fortunate though, it seems to me, that over the 51 years now that the National Heart Institute and its successors have existed that the diseases it represents are so prevalent that it has created obviously a lot of concern amongst citizens and through publicity. It is easier to get people's attention with common diseases.

LENFANT: But I do not know if you know this--earlier this afternoon you were mentioning that somebody said that if we would eradicate cardiovascular diseases, life expectancy would increase by eleven years. The fact is that between 1965 and 1980, 25 years, which is half the life of the Institute, life expectancy has increased by 6 years and something, and it is estimated that 5.4 of the 6 years are due to the



decline in the death rate from heart disease. The rest which is 0.6 years is due to the decline in all the other conditions and the only big disease categories which have had, and still have, a negative impact on life expectancy, that has shortened it, are COPD and AIDS.

FYE: So really the lung problem has not been addressed.

LENFANT: I think that the smoking business has set back the research agenda for 20 years.

FYE: And I have just come from Virginia where there is smoking everywhere, I can tell you!

LENFANT: Well, I do not say that publicly because I would get lynched !

FYE: Right. No, I understand the sensitivity there, but I am sure it is a tremendous source of frustration particularly for a scientist, who came through the whole pulmonary physiology pathway and who understands the potential for basic research and research advances, to have the distracting force of saying, "It is simply this one public health problem and if that were stopped it would not be an issue." We have worked our way through congressional committees, we talked a little about voluntary health organizations, but in terms of their impact on...

LENFANT: I think voluntary organizations, . . . they all come here. Like this morning I met with the Heart Association, and they are all jumping up and down that they want more things. I personally do not respond to that. I say, "Just send the applications." I do respond . . . I responded only twice actually for very rare

diseases that were getting no attention whatsoever. One is primary pulmonary hypertension which affects mostly women.

FYE: Young women, at that.

LENFANT: Young women. And the other one which also affects only young women which is called lymphangiomyomatosis. It is a very interesting disease where you have an obstruction because of smooth muscle in the lymphatics that constricts or blocks off the lymphatics and that results in lung perforation. Basically, women die when they are 30 to 35.

FYE: What is that called again?

LENFANT: Lymphangiomyomatosis.

FYE: And the first part is an eponym of someone's name, I assume?

LENFANT: No. Lymphangio.

FYE: Oh, lymphangio, got it. I see. Now that one I have not heard of at all. That is, I hope, very rare.

LENFANT: It is fairly. I should say there are 200, maybe 250 women in this country. The reason why I became very interested in it and I decided to do something--I know you are going to think it is crazy but some people did not think it was crazy--is that the research is in biology of smooth muscles, and I did it because of the parallel with coronary arteries and the biology of smooth muscles. In fact, some cardiovascular people are now working on it and at the very fundamental level, so it is interesting.







FYE: She is wonderful.

LENFANT: I like her a lot. She is a fun lady to be with.

FYE: It is interesting about the lung association because first of all . . .

LENFANT: Well, they are up to their necks in their divorce between the Lung Association and the American Thoracic Society.

FYE: So, it is politics in part that distracts them from what they ought to be accomplishing. You would think that they would appreciate, or you wish they would know of your background and realize that they have somebody [as director] who understands their diseases better than probably any former director and, who knows, even any future director of NHLBI. I mean, they have had a window in time where they had a sympathetic ear, and they have not taken advantage of it.

LENFANT: I do not know what to say.

FYE: For example, the American Heart Association since 1948 has had research funding as a big part of its agenda, public education, and research funding. Has the Lung Association not had that commitment?

LENFANT: No, they commit much of their money to research. I think the problem with the Heart Association is that, instead of seeing us as partners, they see us as competitors. Of course, that is just the opposite of what I think is needed . . . Today we had a very nice meeting with the crowd that you saw there. I told them the story that I say each year which is that we can cooperate, we can do these things, but it has to be on an equal footing, and whether it is going to happen beats me.

FYE: How much of a problem is it for these organizations from your point of view that they have a president for just one year.

LENFANT: Oh, it is tremendous problem. There is no continuity.

FYE: So, it is a constant problem of re-education and by the time the person is educated they are pretty well gone from your point of view.

LENFANT: Yes.

FYE: So you do rely probably a lot more on staff . . .

LENFANT: And that is a problem . . .

FYE: You mentioned Chris McIntee and before that Nelligan.

LENFANT: But, with the College there are no problems because they do not support research.

FYE: With the College?

LENFANT: Yes. It is more of a social civil relationship, very pleasant. Again, with the Heart Association, we are competitors, but that is how they view us.

FYE: It is interesting because the College, certainly in terms of my own role in the Government Relations thing, one of the big things that we advocate for when we go to Capital Hill is funding of NHLBI. But I understand exactly what you are saying in that the College does not support research, it does not give grants, it does not raise money for research which is something . . .

LENFANT: Yes, but the Heart Association also goes there and supports NHLBI . . .

FYE: Right.

LENFANT: They do not do it for my good looks, they do it for their members, and so does the College.

FYE: You said for their members?

LENFANT: Yes, they do it for their members.

FYE: I know exactly what you mean!

LENFANT: Yes, because the members put pressure on them. I am very grateful to them that they go to the Congress, but I know they do not do it for the Institute. Now it comes to having a day-to-day relationship. With the College it is very nice because it is mostly at this social level and every so often they come and ask us for some money. We give them some. Every so often, not very often, but sometimes they ask me to go there and talk to trainees or fellows or whatever and I do it. It is always very nice except they serve terrible food there! Anyway, with the Heart Association we have common programs, for example, public education, working at the community level, all kinds of things that we could do, but what turns the staff here off is that my staff works their tail off to get something done with them and then, all of a sudden, when it is published, there is no mention of the Heart Institute. So the staff gets mad at me and says, "Why do you want us to work with them."

FYE: That is understandable. I mean, everyone has an investment in ego and then there is their effort, and if that is unacknowledged or not acknowledged.

LENFANT: We have fights all the time, anyway.



FYE: Now the next one on my list was the biomedical research community and their interest in NHLBI and what it does and you were talking about how the American Heart Association lobbies Congress on behalf of its members. It is interesting because I guess I would ask you just to respond to my suggestion that the academic community has a great interest in seeing lots of funding going to research because it supports their careers, it supports their lives.

LENFANT: My perception is that we work very well with the community. I think the Institute is very helpful, very responsive to them. There are lots of people who are complaining, especially those who do not get funded. In fact, I would say exclusively those who do not get funded. Sometimes there are frictions between the staff and the community. During the last couple of years we have had tremendous problems with the epidemiology community, but it was in great part due to the personality of one of my colleagues, who was a little bit excessive in many ways. But I think we have a good rapport with the biomedical community, and we respond to them. That is our business to respond to them. The thing that we have to be very watchful about is to be sure that we retain a balance, and some groups want us to spend all our money on clinical trials. Now, of course, those who have an epidemiological research grant to the tune of \$100,000 a year, they do not want any of that. So we have to respond to them all, and I think we do that relatively well.

FYE: They share interests certainly in that as you point out. Now for vocal and influential citizens. Mary Lasker was in a class by herself. Are there any

individuals that you can think of that have much impact? I guess Danny Thomas had an impact in terms of specific help, Danny Thomas with the Children's Hospital. The comedian, Jerry Lewis.

LENFANT: Now, in this Institute, my problem is that we never had a personality pitching for us. In the Cancer Institute it is very easy. Here, no. The fact is that cardiovascular disease, to take just that, is, of course, a very important public health problem, but the public out there does not pay too much attention to it.

FYE: The public at large does not pay attention?.

LENFANT: No, they do not view it as a problem.

FYE: Why do you think that is?

LENFANT: Because people would rather die on the sidewalk from their heart attack than from breast cancer or prostate cancer or something like that. In fact, lots of surveys have been conducted. If you go out there and ask 100 persons what is the most important health problem that bothers them, if you find four or five who say it is heart disease you would be lucky.

FYE: So it is a perception maybe about pain and suffering in a sense that, "I would rather die quickly than suffer and linger from cancer." Maybe we have to wait for cancer to be cured, if you will, before people become appropriately concerned.

LENFANT: That is perfectly right.

FYE: So you do not remember during your career here a vocal public advocate for heart disease or lung research?

LENFANT: No. And the Heart Association blew it in my view because they kept on talking about death and I think they should have focused on morbidity.

FYE: The consequences of heart disease in the living rather than absolute or relative numbers of deaths.

LENFANT: That is right.

FYE: Maybe you could comment on the media in general.

LENFANT: I stay shy of the media. I do not like the media. I do not trust them, they distort things.

FYE: I guess my question is in terms of just the media and the Institute, part of it is [not?] dealing with a sophisticated representative of the media, I am sure.

LENFANT: No, you see there are two things with the media. We have probably the best media office of the entire NIH, or we have a group of people that are superb, to inform them, but what I said which was negative was about the media-- I mean, they call me all the time. I understand the aim of the phone calls,

FYE: They want you to respond to something, or get your perspective?

LENFANT: I do not do it.

FYE: No. How do you get off the hook? Do they just learn that they will not get an answer?

LENFANT: No. I mean, once in a while I would respond if it is what I consider to be an important source, but I really stay shy of it. Some of my colleagues over there in the Institute they shoot their mouths off all the time. I do not do that.

FYE: Sounds like a way to stay out of trouble.

LENFANT: Yes, I do not trust them. They distort what you say. I mean, most of the things that I have to say are not all that sensational, but they make it sensational, and I do not like that at all.

FYE: How about a breakthrough thing? I mean, that must cause you a great deal of frustration when you watch the evening news or some weekend news.

LENFANT: No, most of the time they are about things which happened two years before. It is really amazing to me. Anyway, that is not the right way.

FYE: Well, this has been another incredible interview.