Dr. Albert Sabin  
May 22, 1976  
Side 3; page 1  

(That is, this hour of tape is on the cassette with May 23, 1976)

A Now, the whole  
Q Read the--  

A Quotation from Dr. Koom's letter. This is taken from the letter to Dr. Rivers. Dr. Koom added, quote, not all of the members of the vaccine committee being available, it was then suggested that a special meeting of that committee should be arranged at which you yourself, that is I, would have an opportunity to present your proposed project and would then be freely discussed. It has not yet been possible to set a definite date for that meeting. End quote. Then I go on with my letter to Dr. Rivers.

Since I gathered from my informal conversations with you and with Dr. Kooms that because of the pressure of other business the vaccine committee would be much happier if I could postpone this study until the end of the year and because I am currently engaged in new experiments designed to determine whether or not still greater modification of the polio viruses is possible I am writing to you at this time to indicate that I shall be very glad to appear at a meeting of your committee to discuss this project in greater detail. But since I have decided to postpone the study until November or December, 1954, there would be no need for calling a special meeting of your committee as indicated in Dr. Koom's letter.

New paragraph. Regarding the so-called Francis Report. Didn't come out until April 1955. But 1954 was the year of tremendous activity in which the blind trials with placebo and
Salk vaccine were being carried out on a very large scale. The judgement that it would be unquestionably a success was prejudged and any other vaccine coming under consideration was considered undesirable, except that I constantly tried to make the point that I wasn't studying a vaccine. Now, maybe I was naive. Sure I wasn't studying a vaccine. But, if these trials with these strains turned out well, it would obviously be in competition with a vaccine that had not yet taken route (root). So there were these other considerations. And it was quite obvious that Mr. Basil Connor who had a great influence on the committee had made up his mind that there should be nothing to interfere. So I am asked to postpone. Now if I were not asked to postpone in March I could have started those tests eight months earlier. You see, I would have found a place as I ultimately--but I didn't. So I agreed to postpone my studies till later in the year and I asked however for a meeting in November so that I can make arrangements. I think this is all that is necessary.

Q Before that, one thing I don't know.
A Let me. Excuse me, could I interrupt you there.
Q Oh, please. Okay.
A Because I say at the end, since considerable time is required for making preparations for the type of experimental studies on human beings that I propose, I would greatly appreciate it if your committee could let me know its decision at least a few months before the time that I would like to start in November. And I ask for a meeting in September and so and finally I think the meeting was held in October.
Q In October.
A The next stage, while all this was going on, I wasn't letting any grass grow under my feet.

Q Indeed you weren't.

A And I was looking around for a place to do these tests. And one of the places that I had in mind was in effect, a place that might be better suited for this type of study than the mentally retarded hospital at Willowbrook State Hospital in order to avoid the possibility of unknowing transmission of polio viruses such as was going on, goes on in an institution like that. Not only polio viruses but as we later learned, all kinds of other viruses are always in constant circulation in such a population. And it occurred to me that if you had a prison with very young prisoners, and on whom a certain proportion regardless of the social, socio-economic status, might still not have been exposed to polio virus, to one type or two types or perhaps a few even to all three types. And if they were in a prison where they had no contact with children who are the main transmittors. By that time we already had reason to believe that they were the main transmittors of polio virus, that would be the best place to do the following. To achieve my objectives, namely, what happens when you feed this virus and you don't have to fear the introduction of a wild virus. And what good would it be to study the changes in excreted, the neural virulence changes of excreted polio virus if you worked in surroundings in which there was still a possibility of picking up virus from children who would bring it to you, you see. We did find that the vast majority of polio viruses that were
being transmitted by healthy children were virulent. You see where all the other preceding studies fit in and were all these plans. I think that all these things were in the back of my mind when I said wouldn't it be nice to be able to find a prison with young enough prisoners among whom there would be a certain number—the number not predictable—without immunity to any one of the three types or perhaps two types, three types.

Q So in effect, inadvertently, a favor was done by turning you down.

A Inadvertently, I would say that the greatest possible favor was done because if I had thought about it more, after the acceptance—if I had been accepted. Well let's say if permission had been granted for the collaborative study in Willowbrook, it would have been the wrong place. As it turned out, years later Dr. Krugman and I carried out a study at Willowbrook and we find how full of interfering viruses the place was, and spontaneously occuring polio virus and it was—so I am not speaking here. I am speaking here of knowledge we acquired actually in the place later on. And it was there that we had an opportunity of studying in a confined institution what is the effect of natural infection with an adenal virus, with coccsacki virus, echo virus. Then it was going on in an intestinal tract at the time you fed such a virus. It would have been the wrong way to start. So, the gods were kind.

Q I wanted to ask one question. I am troubled—is it different when you make an experiment on quote on quote a normal human being, and a mentally deficient one. Is it the same?
When you are concerned in reactions of tissues which do not involve let's say a disturbances in the higher cortical centers, it turns out we now know that it is not the same. The difference is in case of polio, can be very important because the very unsanitary habits of mentally retarded children especially are such that there are all kinds of intestinal viruses there. The possibility they have had repeated infection so that from the point of view of their behavioral patterns in regarded to feces, they are not quite comparable. But as regards to basic response in the intestinal tract, that as we know now, is not influential.

Okay. I just wanted to know.

Alright. Now, it is evident that while these discussions in May and my exceeding to postponement was going on, I always had very close association with Dr. Huebner, with the National Institutes of Health who at that time, together with my former associate. No, no, not yet. Who at that time was carrying out studies on many new respiratory viruses that were being isolated to determine the spectrum of their effect in human volunteers. Huebner had carried out studies in many different prisons. But in a prison, in a federal reformatory. This is not a prison. Reformatory. It is a prison, but it was made up of young, first offenders who let's say had committed crimes, but not serious crimes, who were being taught a vocation, who were being prepared for a new and normal life in society after their being returned. There was this federal reformatory, one of a number of such reformatories. This one was in Chillicothe Ohio about a hundred miles away from Cincinnati, and Dr. Huebner had done a lot of
work there with respiratory agents. It seemed to me that it would be admirably suited for this kind of a study. There was no comparable institution in Cincinnati itself. And moreover, since they were in there for anywhere from a matter of six months to several years, there would be a wonderful opportunity for followup you see. To see what happened over a period of months and have the opportunity to retest them for persistence of immunity for resistance to reinfection. It was an ideal place. So first of all, I had to find out whether Dr. Huebner would resent someone else trying to come in while he is doing studies on respiratory tract infections. Well, Dr. Bob Huebner is an old friend. He said well let's try and see first of all if we can get permission for you. I wrote him on September 30, 1954, this was shortly after I returned from the International Polio Congress that was held in Rome early in September. At that Congress, and we will refer to that later, no one had a vaccine. There was no vaccine. There were the studies on killed vaccine basically that were presented by Jonah Salk and my own studies prior to any tests on human beings up to that point on a live, attenuated vaccine, potential vaccine, strains type 1, 2 and 3. The response of Dr. Erschfeld, who was chairing the session. He was then director of the Institute, serum institute in Copenhagen. There were expressions of great hope, you see and so on and so on. And obviously based on my previous correspondence with Dr. Rivers and with other members of the vaccine advisory committee who were there. They were all there because everybody was talking, even though it is not in the record, of this controlled trial that was going on in the United States and the
almost certainty how it was going to turn out to be successful.
I find here that I wrote to Bob Huebner on September 30, 1954,
as follows. From conversations I had with various people while
in Rome I have reason to believe that the National Foundation
for Infantile Paralysis will probably lend their support to my
proposal to carry out certain studies on poliomyelitis on
prisoners. I would appreciate it very much if you could let me
know the precise names, addresses of people with whom it would
be necessary to deal in order to obtain permission to perform
such experiments at Chillicothe. Provided of course, I say
again, this would not interfere in any way with your own
experiments on respiratory viruses at that institution.
I received a letter from Bob Huebner within less than a week
by return mail apparently in which he told me not only precisely
whom I would have to contact but also gave--told me in the first
place he said I can't answer the question about how studies such
as you have in mind would influence our possibilities for
respiratory disease studies because this is something we can
discuss further with the Chillicothe Reformatory Authorities
later after the basic question of whether or not you get
permission to do these studies is settled. Well, this then
followed in October, a series of meetings in Washington.
I met with Dr. James Bennett, director of the federal bureau
of prisons, I explained to him what I wanted to do and why.
And he said well, alright. Dr. Janney, Dr. H. M. Janney,
Janney, the medical director of the federal bureau of prisons,
of the U.S. Department of Justice, that's the guy. If he says
to me okay, then I will say okay. So then I had my big session
with Dr. Janney. And I explained to Dr. Janney in very great detail. I see a letter here of November 19, 1954 in which I think first of all, Dr. Janney when I first contacted him indicated that obviously if I had permission from a group of experts such as those who would have to go over it with the National Foundation for Infantile Paralysis then it would be easier for him because if they would say no, then he would have a devil of a problem to decide. But I see that I wrote him on November 19, which was after the meeting of the vaccine committee which said at a recent meeting of the vaccine advisory committee of the National Foundation for Infantile Paralysis I was authorized to seek permission at certain institutions to ask for volunteers in a study which is designed to determine whether or not an how certain avirulent strains of poliomyelitis virus might be used to obtain long lasting immunity against poliomyelitis. Since my laboratory is situated in Cincinnati, and since I knew of Dr. Huebner's experiments with nearby Chillicothe, I asked him whether or not it would interfere with his studies if I asked for permission to seek volunteers at the same institution. He assured me that it would not and offered to ask you for your advice as to how I should proceed. This letter is being sent to you in accord with your suggestion. This indicates that I had already discussed things with him. That I should submit a memorandum regarding the nature and details of the proposed study. And this is precisely what I said to him at that time. The purpose of the study. One. To determine whether or not experimentally produced variants of each of the three types of poliomyelitis virus which produce
neither paralysis nor lesions after inoculation directly into the spinal cord of chimpanzees will produce immunity in human beings. Two. To compare the effects of different doses given by mouth and by injection. Three. To determine how many and which of the three viruses can be administered simultaneously without interfering with the development of immunity. Four. To study oral excretion of the virus after all administration and after intramuscular injection. Five. To study the characteristics of the excreted virus.

Those are the five objectives that I listed, initial objectives. And then I describe to him the preparations that would be used in this study. The experimental segregation of the strains, and certain studies with them, were described in papers published in the Journal of Experimental Medicine, June 1954 and Brucell Medicalle 25 July 1954, reprints of which I enclose. Additional studies were presented at the last international congress on poliomyelitis in Rome, September 1954 and further studies are now being prepared for publication. These chimpanzee avirulent strains have been proved to produce immunity in chimpanzees after administration by mouth and after intramuscular injection, and after feeding to two human volunteers in our laboratory. An aside here, it was three volunteers but it didn't multiply in one person. Now, I have something entitled here, "Risk involved in this type of study." It must be said that there is no way of telling what risk, if any, is involved in these studies. The decision to proceed with these studies in human beings
is based on the demonstration that in the chimpanzee, a primate most closely related to man, these strains are harmless. It is not expected that any illness will result from their administration. Previous tests on more than 80 children by another investigator and this refers to Hillary Kaprowki, with a type 2 poliomyelitis virus which was modified in its intracerebral virulence for monkeys but not otherwise characterized, produced no illness in any of them. It is of course well known that even under natural conditions of infections with all kinds of poliomyelitis virus the risk of acquiring severe paralytic poliomyelitis is very small. We would have to tell the volunteers that those who are not already immune still have a certain chance of acquiring severe poliomyelitis during the course of their lives. Naturally. And that the administration of these viruses that is our selected viruses which may be entirely harmless would not carry as great a risk as that of natural infection. This is an important point. By comparison with studies on malaria, or infectious hepatitis which are associated with severe illness and other complications, the proposed tests on poliomyelitis are not only expected to be free of illness. But also much less of a risk to the volunteers. And I have a heading entitled proposed procedure. The proposed plan involves three stages. In the first stage, twelve men would be tested with the type 3 virus. One month later another 24 men would be tested with either type 1 or type 2. And the third stage, one month after the second, another group of 24 men would receive various combinations of the three types of virus. Thus, over a period of three months, sixth men would be required.
It would be advisable to use only young men between 21 and 30 years of age who by previous tests are found to have no immunity. That is no antibody against any of the three types of poliomyelitis virus. It is possible that only 20% of the men in this age group might be devoid of antibody for all three types. It was much less. And it would therefore be necessary to do a blood test of about 500 men to determine the immunity status of the present population. After the virus is administered either by mouth or intramuscularly, the men could either go on with their duties or be segregated to conform with the wishes of the prison administration.

When I took some of this virus myself I did not segregate myself from my two small children. It turned out that I excreted so little virus that only relatively large amounts of feces could have transmitted even a minimal amount from the point of view of the experiment, tests on uninoculated prison inmates would indicate whether or not spontaneous poliomyelitis infection was occurring in the prisoners. A rather unlikely event during the winter and spring months. I am talking about spontaneous. It would be introduced by visitors and so on. Furthermore I say segregation would not preclude polio virus from the outside reaching the prisoners by their food. Following inoculation a certain number of blood and stool specimens would be obtained from each man and it is hoped that periodic blood tests for immunity might be carried out in subsequent months and years. I want to interject here that this was the proposal for the first stage because ultimately the study went on for
three years. It then involved many men. But this is an initial proposal to see how it goes. Sixty men.

Q  Do you remember if the Foundation limited you initially as to how many people--

A  No. At least I don't remember. Now, I go on in my letter to Dr. Janney. Dr. David Price, assistant surgeon general of the U.S. Public Health Service and Dr. Norman Popping vice president of the University of Pennsylvania, both of whom you know, indicated their willingness to consult with you and Mr. James Bennett about this project. And I'd say that both--I am interjecting here--that both Dave Price and Norman Popping were members of the Vaccine Advisory Committee. In other words, this letter shows that regardless of what has gone on, what delaying tactics there might have been, there were members on the Vaccine Advisory Committee that they decided to help me. You see I wouldn't have written that if they didn't say they were willing to consult. They are both familiar with the background and progress of this work as members of the Vaccine Advisory Committee of the National Foundation for Infantile Paralysis. Dr. Popping asked me to tell you that he will be in Washington between Sunday evening, November 21 and Tuesday morning, November 23, and could be reached by telephone either at the Army and Navy Club or during the day on November 22 etc. etc. I am coming to Washington early in the afternoon on November 29, to present a paper at the Meeting of the Association of Military Surgeons on November 30. If it should be convenient for you I would be grateful for an opportunity
to discuss this matter further with you and Mr. Bennett. I would greatly appreciate it if you would let me know whether or not such a meeting could be arranged and if so, where and at what time I might meet with you. I am sending copies of this letter to Dr. Thomas Rivers, chairman of the vaccine advisory committee of the National Foundation for Infantile Paralysis, Dr. Henry Koom, Director of Research of the National Foundation as well as to Drs. Price and Popping. With many thanks, etc. Now what happened.

This is an interesting story of how things proceeded from then on or would you--

Q Oh, please go on. I won't interrupt you now.

A No, if you have something to do with this--

Q One of the things I was wondering--there was one other member of the vaccine advisory committee who I thought might be sympathetic to you and that was Joe Smardel. You don't--

A Well I--of course Joe and I were good friends since we had--the time we were together at the Rockefeller Institute. I don't think that there would be any particular question of being sympathetic or not sympathetic because the integrity of none of these members of the advisory committee is involved here. What is involved is the extraordinary pressure and influence exerted by Mr. Basil Connor to Tom Rivers at that particular point. And Tom Rivers I consider as an old friend. I was very greatly indebted to him actually for making my career possible. If he hadn't been influential in getting me to the Rockefeller Institute from the Lister Institute in London, where I completed my fellowship and if he hadn't given
me many more opportunities for frequent discussions with him during my stay at the Rockefeller, I really, I think my career would not have progressed as it had. So I had no reason to feel about any of the people as either antagonists. I wouldn't say anything that Joe Smardel would be any different. But that there was an extraordinary pressure from Basil O'Connor and from other members of the National Foundation not to do anything to interfere with the Salk vaccine trial. About that there can be no question.

Q In retrospect, do you think it slowed you up?
A I didn't think it really slowed me up. It made life a little more difficult at later stages. But it didn't slow me up, not significantly.

Q Okay. Go on.
A Alright. So now there we are with this proposal in the hands of the medical director of the Federal Bureau of Prisons. I did meet with him, November 30 and with Mr. Bennett and they said Look, we have a certain decision-making mechanism in the Federal Bureau of Prisons which says that while we can stop something that our approval by itself means very little unless the warden of the prison who is the chief executive officer of that prison with full autonomy within its walls approves. So, all we can tell you Dr. Sabin is we approve. Now, you have to convince the warden of the federal reformatory in Chillicothe Ohio to accept it. Shortly after my return to Cincinnati, this is December now. Snow is beginning to fall. I got in touch with the warden. Excuse me for going into this narrative style. And he made an appointment for me to come out
right after New Year's. He said look, there's no use. Christmas and all that here. Don't come now. But right after New Year's at 11 o'clock I forget whether it was January 3rd or what, 1955, you be there and we will discuss it. As it happened, the night before there was the worst snow storm that the Cincinnati and that part of Ohio had had in years. The roads were so icy that when I got out early in the morning, because that trip ordinarily would take two and a half hours the way we drove then. I said to myself I am going to take my life in my own hands because many of those were back roads. It wasn't a main highway. And I said to myself that if I allow this snow storm and these icy roads to stop me at this moment that will be very bad because it may be only the beginning of many other points at which I may stop because of potential difficulties. I started. I arrived late because the roads were so bad, so much snow and ice, that no matter how much time I allowed you see, and I didn't know until I got up in the morning what it was like. But when I finally arrived to the federal reformatory in Chillicothe the warden told me. He says, you know, I didn't think you were going to come through this terrible storm and everything else. I must tell you something. I asked you to come just to give you an opportunity to explain yourself but I had already made up my mind to saying no. But since you did what you did in this snow storm. Since you felt so strong to drive all the way out here to ask my permission I am going to listen to you about it. If you convince me. I am not promising you, but you can convince me. Try and convince me.
Well, as it turned out at the end of a long discussion in which he gave all kinds of reasons why it shouldn't be. (a) He said this was a corrective institution where everybody works. And he has got schedules. And he has got norms to fulfill and everything. And if I come in for these numbers of prisoners and I disrupt the operation of the shops and so on and so on and if anything happens, I will just be asking for trouble. Why should I do that. Well I kept on and I told him why this was a special place where studies of this kind could be done at this stage and should be done at this stage in an enclosed type of organization. And why the information is potentially important and so on. And he said alright. I am going to give you permission to talk to the prisoners themselves. And if you can get volunteers from that tough bunch, he says alright, provided you don't disrupt the activity in my shops too much. So I knew I was in.

Q  Do you remember the warden's name?
A  I don't remember. Somewhere, I have it somewhere in my--maybe I have it in the letter to Janney in the final report.

Q  Probably not. Alright, it isn't important.
A  At any rate I think that because of the terrible weather I stayed there. And whether or not it was on that same day or on a subsequent day we called together an assembly and I guess I must have talked at a time when all the shops were stopped and everything. I don't whether they had 1500 men or 2000 men or whatever. But the attendance was not
compulsory but the place was filled. I described the project to them. I described what would be done. I described the potential significance of the results if they turned out to be satisfactory. And then I had to come to the question of risk. And I described the risk to them. First, in the same way as I described it in the letter to Dr. Janney. I said that those who had had no previous exposure to one type or another of polio virus still had an opportunity after they get out. And I was sure they were going to get out in society of acquiring it and becoming paralyzed because at that time in 1954 young adults were prominent group among those getting paralytic polio. I said at least here you would be exposed to viruses that have been especially selected to are known to be completely harmless then in the closest relative to human beings and if you would ask me what chance there is that you may get paralyzed I cannot absolutely say that there isn't a chance. But if you ask me is it one in a 100 I would say no it isn't one in a--is it one in a 1000 I could probably say no it's not one in a thousand. Maybe not even one in--but if you ask me to quantitate it I cannot really but I can tell you one thing, that in driving here today in this snow storm on the icy roads, I took much more of a risk to lose my life and break my limbs than any of you will ever take by participating in this test.

And then I told them I said those of you who may wish to volunteer, I am going to write out a form explaining it to you, but I may not be able to use you. Because I can use only those who have not previously been infected except for a few
for studies on immunity. So I am going to have to blood everybody who volunteers first, carry out studies for immunity and at least I will be able to let you know are you or are you now to all three types of polio. That information I will give you free. So, if you will on a certain date that we will set aside now with the approval of the warden, all come up and the doctors in the reformatory here and my assistants will come out and will bleed everyone of you and then we will let you know you are immune to all resistant to polio, you are not and those of you who are immune we may ask a few to volunteer for certain studies of the reactions of immune people, but the others will have to come from those who lacked immunity for one or another type of polio. The response was practically unanimous. And so our study started in January with a serologic survey.

Q Now this is--you know, I could understand when you go to the Trenton State Prison when you are working--

A War.

Q There is a war on. Here there is no war.

A Ah, but this, Saul, is an example of how to present a problem because when I spoke to them that this was information that we needed, in order to be able ever to find out whether it would be possible to eliminate paralytic polio as a source of human misery. And that they could contribute to that. That is a challenge that strikes a cord in many a prisoner. No matter what crimes, and I said that in testimonies subsequently no matter what crimes a person commits, there is something in him, particularly not a person who is completely mentally disturbed, that he responds to such a challenge. There it was
war against the country. They couldn't do anything. Here it was a war on a disease which they could visualize. Each of them knew somebody who had been crippled by polio. And there is that basic desire in the vast majority whether they have committed a crime or not, to be able to help. So if you present it as a challenge not as a certainty. I didn't tell them that surely a vaccine will come that will eliminate polio in the first place. I didn't know. I didn't lie. I presented the truth. I said we have to carry out studies. We have to learn and you can help us learn. Without you we can do nothing. There is no other way we can proceed. We cannot go out first and do it on ourselves or among medical students or in families on the outside because at that time I was already convinced that we had to study the nature of the virus that was multiplying in them, that was excreted. We had to eliminate the possibility of naturally occurring virus that was still spreading extensively in the country, of mixing up our results. I said we have to have a captive audience, a captive population, and the very fact that you have committed a crime and you are in prison, makes you ideal subjects for this study because you will not be in constant contact with children who can carry this virus back and forth. This is why you, as prisoners because you are prisoners and because you are enclosed here as you, give us an opportunity to make studies that otherwise really would be very difficult and complicated by many other factors in this early stage of investigation. At any rate I got their support.

Q You got their support. Was it difficult, for example, to get the support of the medical personnel at the institution?
A The medical personnel in the institution—there were not many—there were a few doctors. They were enthusiastic. And furthermore they became volunteers themselves. And their families. Their families in this sense, because I wanted to study the possibility of transmission of an infection by adults. Let's say, because these were adults. After they had been given the virus that they had no immunity. We had no children. There were only other prisoners whom we could bleed later to find out if there was transmission. But the doctors had families. They were young. They had wives with whom they were in intimate association. They had young children, and I said to them, we will vaccinate you. We will bleed you, and if there is no immunity, we will give you the vaccine the same way as we are giving it to the prisoners. But please, could you help. Could we get some blood specimens on your wife, and your children so we could then follow up and also get stool specimens, and get to see whether or not, when the virus is multiplying in your, are you transmitting it to them, without instituting any other hygienic precautions than you ordinarily use in your home. And this, there were not many, there were only a few but it was interesting. No, they were very helpful. But we didn't use them actually because it was my own. I came always by myself. I would have one or two people to help me when there was lots of bleeding to do or separation of specimens because have you got any idea of the amount of work to do that study.

Q Why don't you give us an idea of the amount of work you know.
A Well just think of getting 500 blood specimens first and doing immunity tests for all three types to that, you see, I mean quite aside from the work that was still going on with monkeys and chimpanzees, and the tests because it wasn't a matter merely of giving something to a monkey or chimpanzee and watching him. You had to get specimens. You had to test. I had a tremendous staff on one small floor in the research foundation laboratories in Cincinnati, but they were all working like the devil. I had also in addition to regular technical help, there were people who came from different countries who wanted to learn the techniques, so that I had different people and at different times involved on this. That this was the beginning of a most important set of studies that provided information that really would have been difficult to obtain any other way. And there were interesting experiences in the prison even though this particular installation had the external appearance of a college campus. It was—the surroundings were beautiful. The buildings were fine. It was not the black hole of Calcutta. Everything was nice in order. They had recreation rooms. They had films. They worked in nice shops. They were locked up in cells. Sure, it was a prison it wasn't a college. But still there were certain restrictions.

Now, I had already decided to give the virus to feed the virus as I would if I were to use it as a vaccine. I had already decided on syrup because I carried out various studies on stability of virus in certain solutions, and I thought for children, something sweet to swallow would be very nice, and I used the syrup which happened to have 2% alcohol in it as a
preservative. It had no effect on the virus. Just that little bit of alcohol. And I used to big a big bottle with me from which I would pour out a certain amount, whether it was a teaspoon full, and put a couple of drops of the vaccine on it, depending on the dose, because the dosage would vary, and then they swallowed it. And I had a big bottle of syrup standing on the side. I just finished bleeding a group of 20 or so. And I turn around and the thing is missing. The big bottle of syrup is missing. And it seemed to me without being too much of a detective that it didn't fly away, that somebody stold it. So I had a real challenge to me. How do I retain my rapport with these prisoners and yet not so much how do I regain the bottle of syrup, the hell with that. But I want to know what happened. Did they, for example, drink out of the bottle. Did some of those whom I gave one thing put their mouth on the bottle and take a swig and then somebody else--in other words, they just had swallowed different types of things--the whole experiment could have been mixed up. I had to know for the sake of the experiment, not for the sake of whether they were still thieves, you see. So, I didn't tell the warden but I got one of the boys who was still there. I said, look, I can understand your diet is not very varied, and this sweet syrup is very tasty stuff, it has a little bit of an alcoholic flavor. It is missing. I've got to have it back because I've got to know what has happened because it may spoil my whole experiment and you people wouldn't want to do that to me. So would you do me a favor and go and round out everybody who was here, the 20 men who were here.
So he goes and rounds them up. And I tell them, and I said, I don't want you. I don't want to know who did it. But in the first place I am going to go out of the room and when I get back I would appreciate it if that bottle would come back here because I want to see, because I know how much was in there, whether anybody had drunk anything out of it because what I would do then, because if it is evident that nobody touched it, then I won't be so much concerned but if somebody was drinking out of it, I would have to know everything. So I went out. And I said you knock on the door here when the bottle is back, and I will come in. So I came in. I looked at the bottle and my God, it was mostly gone. I said Oh My God, what have you done. I said, how did you do it. And who drank. I said, did you pass it from mouth to mouth. Yes Doc. I said do you know it means? That somebody who had type 2 polio virus that I gave the virus strain to could have put some of it on this and somebody else--so I said look fellows, let's line up here and we, ourselves, we understand each other. I was never a very stuffy--I said, now, let's recall to the best of our ability who took the first swig out of the bottle. I did. And put it down. Who took the next swig out of the bottle. The reason I could do that was to identify what, who might have contaminated with what. Well, as it turned out, there was no cross contamination. And this was part of the anecdote. And I said, I will tell you what I am going to do to show you my appreciation for the way you are playing with me. When I come back in two days to take specimens, I am going to bring a six
ounce bottle of syrup for each and every one of you to drink several of them. And please don't ever do it again. I mean, there were many interesting relations. It was a job because they to collect stool specimens for me. It wasn't that I could go there. It was not just take a swab. I needed to know the amount of virus excreted per gram. They had to work for me. I had to leave containers to put the stool in. I had to bleed them repeatedly. I had them keep track of what symptoms or anything that developed. We had no way of knowing. We had no way of knowing that an infection of the alimentary tract would be completely symptomless. And this is where the medical staff cooperated. I said mind you if anything happens if anything happens at all, no matter because look before I came here you guys used to get sick and you had to go to sick call. This is January, February, you are going to get all kinds of symptoms. I want you to call the doctor right away because we have an understanding of just what we'll do. You see.

Q I want to backtrack a little now. Did the foundation concern itself with insurance and insuring you, and your--

A Yes. Well there was. We took out some insurance. Actually the institution and me and it was covered so that if anybody would sue us if anything would happen we would be able to compensate a person whether it was our guilt. Yes, we took steps for that.

Q Are we running over time now?

A I think this would be a good time to stop.

Q Okay. We'll stop.

A For the record I would like to note here the frequency
among the Chillicothe volunteers of persons who lacked antibody for one or another type of polio virus. And I notice here in my semi annual reports for 1954 that among 218 men aged 21 to 29 who were tested for the presence of all three types of poliomyelitis antibody, approximately 40% were found to lack antibody for one or more types. Unfortunately only five men—that is out of 218 were without antibody for all three types four of these five men volunteered for the experiments. Among 36 men without antibody for one or more types, who would remain at the reformatory for a sufficiently long time to permit this study—that is another thing because many were on their way out. Thirty volunteered for these experiments. So it shows how—it shows two things. Number one, which is really last, how good the volunteering rate was, and secondly, how surprisingly in a population of a socio-economic group represented by prisoners at Chillicothe, and in the age group of 21 to 29, that even among them, 40% lacked antibody for one or another type. And it can be seen why the incidence of paralytic polio in older age groups and young parents were as high as it was in the United States at the time.

I think this is important for the record. It is also important to note here that while we were able to study in these volunteers the effect of a single type of polio virus in a person who presumably had no—why did I say presumably—because an occasional person without antibody could have had a previous infection and some resistance, so that multiplication of virus in him for a short time would not necessarily reflect
what the virus would really do, but at any rate, we could find enough persons in whom we could study the type 1 or type 2 or type 3 alone or sometimes type 2 and type 3 together or some combination. We had only four you see out of over 260. Only about 2% roughly in whom we could study the effect of all three types. So although we were limited in this respect, we nevertheless made the most of it, that finally after extensive studies in these adult volunteers we had to make the next step which we will come to later, of actually finding out what happens in young children, they lack all three types of polio virus—which is very very important because there is always a question to the extent of which there may be some cross resistance in process. And also older persons who lack all three types of polio virus antibody in another socio-economic group which are very frequently affected by paralytic polio during that period.

Q Now, Dr. Sabin, I am continually amazed at the growing complexity that I see in this kind of work. It almost seems to me that one has to be in addition to a virologist, one has to be a geneticist, one has to be a sociologist and so on, or is that drawing you too fine.

A I think it is correct that in this type of study there are sociological factors to the extent that in unity and in previous experience with infection by a certain types of polio virus and other kinds of related viruses differs in different socio-economic groups. It is also true that genetic factors particularly population genetic factors play a role in the culture of polio virus particles and there also may be some
genetic factors. This had already been demonstrated in different hosts but you don't have to be a sociologist, to think, you don't have to be a geneticist in order to be able to proceed with the work. You don't have to be a specialist in the field, you merely have to appreciate and face the problems, the sociological factors, especially the influence, the behavior of different groups to the virus.

Q Fine. I want to change the tape now.

A Yes.

END OF TAPE.