Q Dr. Sabin, do you remember how you got the news of the Canadian thing. Did that come from the Canadians to you or did you learn about this from the Surgeon General and the Committee?

A Oh, I don't remember and I don't even--there was no Committee yet. You see.

Q Yes.

A The Public Health Service really wasn't involved with it because this became a campaign which was entirely a campaign under the organization and operation of the local county medical societies under state and local health offices.

Q Yes.

A And so, the Public Health Service that was caught in between because actually what happened was that these mass campaigns strongly resisted by the National Foundation--was strongly resisted. And as a matter of fact why I knew about it I never really had seen the kind of strong misinformation and recommendations against its use that came out from the National Foundation.

Q Can you give us an example of that if you'd like to?

A Well, I mean here is, for example, April 25, 1962. To all Chapters of the National Foundation and they say that there is no need for it and it goes on to say--. Of course it goes--where are the attachments. Here. They are not part of this. At any rate, the gist of it is that there is no need for mass immunization. This is the same thing. In
other words, when they lost-- and although they had tremendous amount of influence within the Board of Trustees of the American Medical Association. And in 1961 they thought well alright, they lost but there is no vaccine. There was no plan for using it. But then everything happened in Arizona and then when county medical societies and state health officers began to operate, they gave out this recommendation against it.

For example, it says here: since the last statement was issued, as of March 27, 1962, the Surgeon General licensed two companies to manufacture the three live virus polio vaccine strains which he found to be safe and effective. As set forth in the statements, accompanying statements, a killed virus vaccine has already eliminated polio and so on. And the only need is well you have to do it to the newborn children and then it is up to the professional judgement under the local medical authorities to decide what to do. And they opposed. This was to all of the chapters of the National Foundation. The community programs are organized despite the tremendous campaign that the National Foundation carried on against it.

Alright, so, actually what happened. And I don't remember when those cases came along. But, in Canada they had a way--they started off and they gave Salk vaccine first and then they gave trivalent vaccine. At any rate, there were four cases of polio so they still had polio in Canada, just like we still had polio in the United States. And from all of the four cases type 3 was isolated. When you give all
three types of oral polio virus vaccine to a group of persons, several weeks later the probability of getting type 3 rather than any other type is very much greater because that multiplies more extensively. So you have out of two million you have four cases. Well, maybe, who could say. Now whether or not they were really polio, whether or not they were wild polio that happened to occur was never resolved. But then the Public Health Service organized that surveillance and all sorts of cases that occurred after vaccination because this actually was begun during the summer when polio is occurring and there are all sorts of other non-descript central nervous system manifestations that can be confused and has been confused over the decades, the centuries with polio now began to be reported as polio after vaccination. But even so, there were very small numbers of cases out of millions. And as it happens you can never quite tell some cases occur after type 1 because they were given individually. Some after type 3 and the way it was given, the 1 was given first, then I think because the summer was coming along, it was followed four weeks later, rather than six weeks later, by type 3. So in effect what happened in my judgement is that the type 3 was given later in the summer when there is more spread, spontaneous polio virus. But even so, a very careful analysis of fifteen cases after some millions of type 3 doses showed the very marked difference of opinion. It was not clear cut. That first of all, they were really
polio and the criteria on which to regard whether or not it was a case of polio or was not a case of polio was so full that among different persons who were qualified, maybe they were not all equally qualified to judge. Some were accepted as clinically compatible. Some were not. And I have a number of letters here which you have brought for me today.

Q Ah, why don't we--the Surgeon General did have an advisory committee and you were a member of the advisory committee, and there were other people on that advisory committee. And as you have indicated, there were differences of opinion on that.

A There were differences of opinion which had to do with evaluating cases that happened to occur. There were certain things about which there is no difference of opinion. Guidelines. But then the application of the guidelines became very difficult. For example, it was evident that as long as polio was occurring, that some cases were bound to occur concurrently with the administration of the vaccine. Secondly, that it would not always be easy to determine whether a case was polio, and that obviously you couldn't say that everybody agreed on that, that just because you isolated a virus that you fed or that you know multiplied in a hundred thousand people. If you took a drink of water, you would find the virus in the stool, that you couldn't say because the virus was there, it caused that condition. And so there are a number of other
basic principles. But when it came to the actual determination
of whether or not there might be some small risk involved, then
one had to go very carefully because as it went from 500,000
to 1,000,000. As it went to 10,000,000--20,000,000--it was
obvious that certain things could occur that one had to watch
out for. So this was a very necessary and important activity.
So that differences of opinion then began to arise. Alright
everybody said well if it occurs less than five days after the
vaccine--well the vaccine couldn't have had anything to do
with it. The incubation period is too short. If it occurred
more than 28 days after--well, it is not likely it could be
that. So immediately things were excluded on one side and on
another side. And then cases began to occur in a most peculiar
manner. We would have let's say five or six cases in Nebraska
in a small group and nothing among many, many millions elsewhere
in the country. And when an analysis of the cases was made,
there were many, very qualified people said no, this is not
polio by the longest stretch of the imagination. Of the
fifteen cases-- Let me just stop a moment and look at the--

Q Fine.

A September, '62. This was a polio period. September,
October that about fifteen cases had been accumulated--
suspect cases--that occurred after millions and millions
of doses of type 3 vaccine. And I want to see here for just
a moment--turn it off.

Q Begin again.
A For example I have a letter here dated November 5, 1962 which is in reply to an analysis that I made of all fifteen cases as to whether or not authentically (clinically ?) they could be regarded as polio or whether--on just clinical grounds they were other things. So, and I sent around my evaluation and more careful analysis than was possible at the meetings because at the meetings you see there were so many people and it wasn't possible really to go in as much detail. So I would go back home with all of the data and information that was accumulated, present them and analyze the material--which incidentally is available through publications--but and then I sent it around to the different people--O'Connor, some members of the committee and others were people who had to make decisions elsewhere. And one of the people to whom I sent it was Dr. Louis Corielle who at that time was chairman of the Committee on the Control of Infectious Diseases of the American Academy of Pediatrics. And he writes his own evaluation of the fifteen suspect--on the basis of which you see--now mind you nobody said that these fifteen cases were caused by the vaccine--but that they had to be considered as to whether or not some of them might have been caused--so he goes on. But the calculations were nevertheless made by the Public Health Service on the basis of fifteen. And in his letter--clinical evaluation of suspect cases after review of the records--he says of the fifteen suspect cases described, I would say that six must be classified as polioliike on the basis of all clinical and laboratory evidence available. Each one needs further muscle
evaluation for completion of the clinical data and to help in characterization of the clinical illness and the degree of permanent weakness. Not one of these can be proved to be caused by type 3 vaccine virus. And then there are others in which the question arises, you see, that one really cannot say because peculiar situations. And there was a peculiar geographic clumping like Nebraska and Oregon, and California. And as I pointed out, why all of these in Nebraska and nothing in 15,000,000 elsewhere in the United States—and as I analyze later because actually it was a dramatic situation into which many factors entered into. And one had to exercise a great deal of care. But subsequent use in 1963 and '64 when vaccine was administered not in the midst of the season, gave totally different results. And which again I was able to show for example, that out of a certain number of suspect cases by then only one was in a woman—and that in a woman that had had four or five doses of Salk vaccine. So how can you have say twenty in men and only one in a woman. Polio doesn't behave that way. So, the numbers were so small as was pointed out by others, that ultimately it came down to the epidemiologists in the Public Health Service. They said well of course in any one individual case we cannot say what the situation is, but epidemiologically it would appear as if there is a sort of accumulation of cases to lead one—and here the wording led to a lot of trouble—because it was Lanier of the Public—of the Center for Disease Control now who used the phrase
with which the Academy of Pediatrics didn't want to go along. Because he said that the epidemiologic evidence—this is '62—points that at least some of these cases were probably caused by the vaccine. And the Academy which also wanted to hold off and see what was going to happen—could not—would not go along with this statement. That the evidence, the statistical evidence pointed at at least some of the fifteen cases were caused—because, again, statistical evidence cannot be used as people pointed out—well here again, from Corrielle and the same thing from Fred Robbins later—they said you are well aware that the usual laboratory tests for isolation of virus and serology are of little value after feeding live virus because everybody had multiplication that developed antibodies. And he says the epidemiological data is almost as unreliable in the frequency of occurrences of the order of one in a million or less. And as a matter of fact that is what it turned out. Because data that were obtained in 1962 and subsequently were not obtained in '63 and '64 and then in subsequent years when for practical purposes it then was used as a routine in the United States, and Salk vaccine was completely eliminated and pediatricians were giving only trivalent vaccine, that it was used in Canada, where after 2,000,000 doses there were four cases associated and there wasn't anything that was happening with type 3. So, it was a difficult period with many differences of opinion and some very strong exceptions taken because there were very unwarrented statements that were given out to the press, and I am really surprised that despite all that the mass vaccination program went into such tremendously high
gear and in the winter and late months of--no--in the early months of '63 and then again in '64. But I have one letter particularly that you have brought me out of my files that I had forgotten completely. And that was a letter that John Fox wrote I think to Dr. Sensor, the director of the Disease Control. Will you turn it off a moment.

You know, it is interest for me to relive what were dramatic and also traumatic periods, now, practically, not quite fifteen years but almost fourteen, fifteen years later. With these letters, correspondence which you have brought me--some of which of course are correspondence between--some of these letters are between me and other people, but you have here one letter that I never saw before. This is a letter from Dr. John Fox to Dr. David Sensor who was already dead in 1962, Medical Director of the Communicable Disease Center. Now John Fox was a member of the committee, and incidentally it comes to my mind now that the business of saying which cases were really polio got to be such a problem that the Medical Association, that the AMA appointed its own committee to go over the suspect cases and they came up with quite different versions--which ones they would accept as possible cases that needed to be considered. And in his original comments, Dr. Fox pointed out, and I am reading here from him--he said the matter of geographic clustering is one of the factors which from the beginning has provided me with the most substantial reasons for doubting the sole relation of vaccine to the reported cases. And one of the places where there was a clustering was Nebraska. And because this was in the minds
of many people the Center for Disease Control was urged to make a more extensive study of what actually happened in Nebraska because my analysis in all of these I remember I used to check it with Charley Ayring in Cincinnati. He was a great neurologist I think then or later he was president of the American Neurological Society—they just weren't polio. But you see the problem was that some of the people said well how do you know that if an attenuated virus were to become pathogenic in one out of a million or two out of a million people—that it wouldn't give rise to atypical things. And then you had other factors: the absence of virus in the stools of many of them. At any rate, the Center for Disease Control sent people to make a more detailed investigation. What was happening in the rest of the community—those who didn't get vaccine. And what happened before vaccine and what happened after vaccine to see whether it wasn't just picked out. And the man who went out. He was a nice fellow. You could call him knowledgeable. He brought back a report which was leaked to the press, and I will read the last part of the paragraph which really was responsible for John Fox writing to David Sensor. I take it I must have gotten a copy as a member of the Advisory Committee because I see now he sent copies of it to the Advisory Committee, but I had almost forgotten. And the thing that brought it on was this: I will read the last two sentences from his letter which was responsible for Dr. Fox's writing, analyzing himself. He said: looking at the Nebraska situation by itself the picture is certainly far from clear, but I certainly would not agree with the
conclusion reached by Dr. Glesson that 'the epidemiologic evidence strongly indicates that the paralytic disease occurring in Nebraska is directly related to the feeding of the attenuated polio virus vaccine'. It is--John Fox continues--it is most unfortunate that this statement was inadvertently made available to press and given wide publicity.

Now, whether it was made available to the press by the Communicable Disease Center which was receiving a great deal of criticisms from state health officers or--and given wide publicity--or by the National Foundation which on the basis of a statement issued to the press on September 26, 1962 by Basil O'Connor as a vitriolic attack on the communities and the county medical societies that were doing these mass vaccination campaigns, I don't know. But at any rate what John Fox then did was to analyze what happened in Nebraska. And he said that well this is a long letter. Because he goes in--he says excluding case number 26, the sudden death in an infant in which there is no evidence of central nervous system disease, there appeared to have been 33 cases in all told uncovered by the surveillance team which had some manifestations of C&S disease. This is in Nebraska. Including case 20, with a three-day interval after the vaccine which was eliminated by the committee--and case 32 with a five-day interval, twelve of these 33 occurred within thirty days of administering type 3 vaccine. And another 12 occurred more than thirty days following the administration of type 3 vaccine. And nine occurred in persons who had not received type 3 vaccine at all. And he says there is a fairly clear tendency to refer
to such diseases as paralytic poliomyelitis when it occurred in persons who had received the vaccine. Cases 2, 3 and 7 form an interesting group in that the principle residual in each instance was foot-drop. Now foot-drop is a manifestation of a peripheral nerve being in the stool (?)

Another syndrome is that of infectious polyneuritis, Guilliam Barré disease, just--here you have it now. And just as we encountered in Cincinnati. Three people died of Guilliam Barré but it was not during a period when the vaccine was being administered and there was nothing in them. In addition to cases 27, 28, 29 which occurred 50, 61 and 0 days after feeding type 3 vaccine, one should also include case 5 which occurred 12 days after vaccine and case 10 which occurred more than three months after type 3 vaccine and fifteen days after type 2 vaccine. These latter 2 are listed in Table 1 as if they were paralytic poliomyelitis. What it means is not clear but it is also of interest that of the four cases with transient muscular involvement and the fifteen non-paralytic cases, only three--all in the aseptic meningitis category--occurred within thirty days after feeding type 3 vaccine. Well, what he goes on to say is, that certainly a careful analysis of what happened in Nebraska didn't happen elsewhere in the country. Certainly did not justify such a thoroughly biased and unreliable statement. The epidemiological evidence strongly indicates that the paralytic disease occurring in Nebraska is directly related to the feeding of the attenuated polio virus.
Now this was unwarrented, and to show the kind of sentiment and passion that accompanied the situation at the time was that it was given to the press, mind you, spread around the country, trying to stop these mass vaccination programs. And the concentration on so-called epidemiologic evidence was strongly denied by many people because again the denominators were too small. And I have a letter here from Lanier who insisted entirely on epidemiologic evidence and he says here that their position that they have taken with this trying to make a case on the epidemiologic evidence which was discounted by others—of course Lanier went on to say only the passage of time, of further time will permit a final judgement. Well, it did. And then he says I am deeply concerned over the position of the Surgeon General and of the Public Health Service in the eyes of the medical and health professions and the public. It must be one of leadership based on respect. On September 15, we were in the position of being openly defied by several highly respected state health offices. The public criticism from some verged on contempt.

Q It—so it is political and not epidemiological.

A Well, alright. Now, these were the problems that were faced. The differences of opinion within the medical community, and when the Center for Disease Control of the Public Health Service came out with these statements, I must say to the credit of the Journal of the American Medical Association, they printed side by side analyses which I made to show that the claims that were made, in the judgement of the committee-at-large were really not valid and
they published side-by-side my views on that, which I made very careful analysis. And some of these things—I thought I had them here—because there was one set of recommendations by the Public Health Service at the end of 1962 and then another one in July, 1964 which was quite different from those in '62, but let me just read from the—I think it was published in--. The comment that I made on the significance of the very small number of cases of vaccine-associated paralytic disease. There was no question that there is vaccine associated paralytic disease. To be very frank, I am surprised that there isn't more in adults. Never was it even thought possible that all of paralytic poliomyelitis that is, clinically, pathologically, was caused entirely by the three types of polio virus, because in the years that preceded this, the extensive studies had shown exactly (?) coccsacky A-7, (?) some of the echo viruses were able to produce clinically and pathologically similar poliomyelitis. Not always with transitory paralysis, sometimes with persistent—and therefore when I find now in the country in the United States, 250,000,000 people in the situation where polio viruses keep coming in every year with migrant labor and families from Mexico where there hasn't been control, and in a situation in some communities as many as 50 percent of the children have not received any polio vaccine at all, of having four or five cases as a total in the United States per annum in the last three years, '73, '74, '75—I don't know what the final
figure percentage is—it is to me incredible that there aren't more. It should be more. Well at any rate, I write here on the significance of the very small number of cases of vaccine associated paralytic disease: It has been recognized by all—and I am referring here to the Surgeon General's report of September 20, 1962—that concurrent cases of paralytic disease must be expected in association with vaccination of non epidemic areas, that the expected number be lower than in epidemic areas but not zero. Now these concurrent cases could be expected to be composed of some that were caused by polio viruses in persons who were incubating the infection at the time that they received the vaccine, some that clinically simulated poliomyelitis but that were caused by a variety of factors including other naturally occurring viruses which could be displaced from the intestinal tract by the vaccine strains that were fed that originally could have been responsible for the disease but no longer found in the intestinal tract. There can also be justifiable differences of opinion among competent persons regarding the clinical diagnosis as well as judgement of compatibility as was demonstrated in my analysis of the vaccine-associated cases report of 1962 and that was published in May of 1963. In this connection I say it is noteworthy that of the fifteen type 3 1962 vaccine associated cases, accepted as compatible—this is in quotation marks—"compatible" as a definition—by the majority of the present committee—the advisory committee—there are four which on the same evidence were not accepted as compatible by the majority of the 1962 Public
Health Service committee. And five that were eliminated on clinical grounds by the 1962 AMA committee. So of the fifteen on which the original hub of 1962 faced, five were eliminated concurrently by the AMA in 1962 committee. The new Public Health Service committee that met in 1964 eliminated four of those themselves that an earlier committee accepted. I say it is also noteworthy that one of the six type 3 vaccine associated cases regarded as poliolike and accepted as compatible in 1962 by all but one member of the Public Health Service and AMA committee— that one member was myself—but supported by Charley Ayring—after a lapse of more than a year developed further clinical manifestations that made the diagnosis of disseminated myelitis— that is multiple sclerosis— acceptable to all. And thus was unanimously removed from the compatible group by the committee. I also take exception to the third criterion of compatibility which calls for laboratory data not inconsistent with— it didn't say laboratory data consistent with— which are almost impossible. But laboratory data not inconsistent with respect to multiplication of the vaccine virus fed. On the basis of this criterion, type 3 cases have been acceptable as compatible when there was no laboratory work in three cases, when no virus was isolated in thirteen cases and when neutralization were either not done, seven cases or inadequate in nine cases. And even when the serologic data indicated a high probability that the vaccine virus didn't multiply at all prior to the onset (?) in five cases. Nevertheless, according to its own criterion,
there were all vaccine-associated cases from 1961 to 1964—
because in '64 the committee accumulated everyone's statistics—
the report comes up with the interesting finding that following
the administration of approximately 100,000,000 doses of each
of the three types of monovalent vaccine, only two compatible
cases were associated with type 2; fifteen with type 1 and
thirty-six with type 3. While recognizing "that it is not
possible to prove that any individual case was caused by the
vaccine"—that is what the report said—"the present report
states that the above epidemiologic or statistical evidence
is the basis for the belief 'that at least some of these
cases were caused by the vaccine'—incidentally is a statement
to which the Academy of Pediatrics took exception—and
proceeds to calculate the extent of risk on the basis that all
of the so-called compatible vaccine-associated cases were
caus by the vaccine."

On one hand you say you can't do it and then the risk
is calculated on the basis that they were all—so I suppose
it would represent a calculation of maximum risk. The
conclusion being that the risk is highest for type 3 with
one compatible case for two and a half million doses, less
definite for type 1 with one compatible case per six and a
quarter million doses and suggestively absent—I am using
here quotes in the words of the committee—for type 2 with
one compatible case for fifty million doses. The question
is therefore, whether one can properly take the one so-called
compatible case for 50,000,000 doses of type 2 vaccine as
the baseline of expected concurrent incidence of poliolike paralytic disease and regard everything significantly above the one in 50,000,000 as poliomyelitis caused by the vaccine viruses. That is what it comes down to. In view of the very small numbers and extraordinarily large denominators and the well known variability of the sporadic occurrence of poliomyelitis and other poliolike paralysis, it is not possible that under different circumstances the type 2 vaccine virus might also be incriminated on the same type of guilt by association or guilt by statistical probability. It actually happened later (words omitted)

Actually, I say, this appears to be the situation with the four compatible cases that have occurred after the relatively small amount of trivalent vaccine that has been used thus far: Type 2 virus only having been recovered from two of these; type 1 only from one, and type 3 only from one. If the committee is to adhere to its own criteria that the vaccine virus that is found in the stools should, for purposes of evaluation at least, be regarded as the agent responsible for the disease which no one really said--two of the four trivalent vaccine compatible cases must be assigned now to type 2 so that makes it now one in 2,000,000.

If we assume that only about two to four million doses of trivalent vaccine had been distributed up to May 1964 and it is regrettable that commercial secrecy precludes more precise information--the occurrence of one type 2 compatible case for one or two million doses of
trivalent vaccine compared with only one compatible case for 50,000,000 doses of monovalent type 2 vaccine could constitute highly significant statistical difference. If the committee had followed its own so called epidemiological, statistical evaluation it should have concluded that the type 2 vaccine virus may be responsible for some cases of paralytic disease when it is given in a trivalent mixture--and not when it is given by itself. My point is that the one in 50,000,000 type 2 yardstick adopted as a baseline for epidemiological statistical incrimination of type 1 and type 3 oral polio vaccines as a rare cause of vaccine-associated paralytic disease is unrealistic and untenable. I believe that a separate analysis of the vaccine associated cases that occurred in 1963 and 1964--and I mean here by not pooling everything from '61 and '62--when it was given in the face of epidemics--provides additional illuminating data since with the exception of about 2.8 million doses of type 1 vaccine that were given during the summer outbreaks of 1963 the remainder of the vaccine was used during the autumn, winter, spring. About 59,000,000 doses of type 1, 54,000,000 doses of type 2 and 76,000,000 doses of type 3 were distributed from January 1, [1963 to May 1964.

Let me make an aside here. In spite of all the press propaganda and the discussions and scare tactics, more of type 3 then was used than of any of the others because some didn't get type 3 as a result of that. But later that disappeared. And 76,000,000 doses of type 3 were distributed from January 1, [1963 through May, [1964. And it is also
evident that a considerable proportion of the 44,000,000 doses of type 1; 39,000,000 doses of type 2 and 23,000,000 doses of type 3 that were distributed in 1962 were actually used in 1963. It is noteworthy that that by the committee's own criteria, only four so called compatible cases occurred among an estimated 60,000,000 persons who received the type 1 vaccine in 1963-1964, which would make it one in fifty million even if you accepted every compatible one as being not associated but caused. The somewhat larger number of type 3 vaccine associated cases, sixteen probable and six possible cases among an estimated 76,000,000 in 1963-64 is particularly suspect because of the unusual distribution of these cases among the sexes. Naturally occurring poliomyelitis is slightly more prevalent among males than females. For example, naturally occurring polio in 1960 among 2,218 paralytic cases in the United States, 58 percent were males and 42 percent were females of all ages. In the age group of 20 and over, it was 59 percent of males and 41 percent in females. And I give the reference. I mean this is all the homework that I had to do. The committee should analyze things like that, but it didn't. Then I say however, among the total group of 22 compatible—that is probable plus possible—following the 76,000,000 doses of type 3 vaccine in '63 and '64 there was only one female—only one of the twenty-two. And that was a 27-year-old woman who had received four doses of Salk vaccine prior to receiving the oral vaccine. If the report were to apply the same kind of so called epidemiologic evaluation to these data it should
have concluded that the type 3 vaccine is without risk for females of any age. Another reason why I cannot accept the conclusions of this report about type 3 vaccine risk and the role of age in that risk is contained in the 1964 results which are again different from those of 1963.

I should make an aside here. In analyzing these small number of things they said now isn't it peculiar that most of these suspect cases are in older persons. Well of course to me it is not surprising because other central nervous system complications which may have some involvement of paralytic manifestation occurs more often in older persons. But at any rate, I mean it was a temporary thing the that led to a recommendation in '62 that vaccine should be given alright, but not to those over eighteen years of age. So what happened in 1964, see. Let me read over again in view of all this another reason why I cannot accept the conclusions of this report about type 3 vaccine risk and the role of age in that risk is contained in the 1964 results which are again different from those in 1963. Every year is different depending on small variables. In 1964 after an estimated distribution of about 22,000,000 doses of type 3 vaccine from January through May, 1964, there have been only two among 22,000,000 probable, compatible cases--both of them under one year of age. Twenty-two million. So where does age come through? And then the four possible compatible cases constitute a particularly dubious lot as regards evidence of infection with type 3 virus prior to
onset of illness. In two cases there was no type 3 neutralizing antibody at 31 and 32 days respectively after ingestion of the vaccine. It didn't take. In the third case, no virus was isolated from the stools obtained 18 days after the vaccine and the serologic data provided no evidence that type 3 virus had multiplied. The fourth case was clinically atypical. It had a history of having received five doses of Salk vaccine, and there were no laboratory bases (?)

Now, if five doses of Salk vaccine—and this occurred repeatedly in a certain proportion—is not enough to protect against an attenuated virus that may attack one in 10,000,000 or one in 5,000,000 what is the use of coming out with a recommendation of using Salk vaccine as for example up in Canada and then on top of that, give oral vaccine. Or, as Salk has tried to say now, (unfinished sentence).

Q Um-huh.
A So that, oh yes, I have another comment here. Statement that vaccine-associated cases occurred largely among adults. I have already indicated that it doesn't hold. It didn't hold for 22,000,000 doses in 1964. Different in '64 than '63. Alright, I said quite aside from the fact that many of the compatible cases in adults are clinically dubious the statistical analysis of estimated rates based on the Bureau of Census survey of September, 1963, shows no particular pattern other than the unpredictable distribution of small numbers. Actually, if one takes only the major groups of under twenty years or twenty to forty-nine,
one finds for type 1 slightly more under twenty—one in about 5.7 million. Then in 20 to 49 one in about 9.5 million. For type 3 it is the reverse with one in 4.4 million under 20 and one in about 1.9 million in the 20 to 49. Well--

Q Say that--

A Well, many of these things which I think this represents, the discussions that went on—and it is unfortunate that these things are on the records and with the epidemic of law suits which we have in the United States in which people are suing. I mean their lawyers are suing for everything, they keep referring to these statements of the Public Health Service—the committee of the first--

Q It seems that when you look over the letters which you received from various people that there is strong disagreement among those who write as to what constitutes a clinical case of polio. And those differences I find absolutely astounding. I don't know why there should be those kind of--

A Let me tell you why.

Q Yes.

A The concepts of what may be atypical—not typical—but atypical clinical manifestations of the disease called paralytic poliomyelitis is due to the fact that they have grown up during the period—(incomplete sentence).

END OF TAPE