Dr. Albert B. Sabin  
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Elland and Bethesda Avenues  
Cincinnati 27, Ohio  
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Dear Doctor Sabin,

As I told you in my recent letter the recording of your lecture on polio unfortunately was very bad. I am sending you the few lines that was possible to obtain.

As I know that you are always very busy and to write all the lecture given here takes much time I think that if you could send us a summary with some of the tables you showed here it will be good for us and would not take much of your time.

With my best regards to Mrs. Sabin and many thanks, I am,

Sincerely yours,

Manuel R. Pinto.
ELEMENTARY INFECTION

... potential use for human ........................
and you test for it in two ways:
1) You test directly the stools themselves by intracerebral inoculation in monkeys.

But that is not enough, because the stool itself may have such a low concentration of pus in it that you are testing nearly the capacity for a thousand or ten thousand infected doses, and as you saw, that may have no activity, whereas a hundred to a thousand times may have more. So, for that reason, in addition to testing the stools themselves, or the throat spots, you also test the first culture fluid that comes from it, where the virus multiplies up to ten million or so. On that basis, it has been found that in the alimentary tract there are some strains which apparently re-combine as the result of multiple infection in the intestinal tract, and give you a virus or a certain number of particles with the next higher step in the spectrum. They are still not paralytogenetic for chimpanzees, but as tested in monkeys, they are a step higher. Furthermore, as you continue to observe the chimpanzee or human being in whom that happened, these particles have no advantage. In other words, if the animal or man continues to excrete virus for another four or six weeks, they are not present in larger numbers at the end of the..... which has a great capacity for multiplication in the alimentary tract, so that it can produce immunogenic activity.

The next problem is the problem of interference, when all three types are fed simultaneously, because what you are doing when you feed type I, type II, type III virus at the same time, you are setting up a competition, and some strains will knock out one, and others will multiply together, and when you get all three of them going, they sort of crowd each other around. Well, studies which we have carried out have shown that at least, to begin with, it would be desirable to feed the individual strains separately. Feed one, several
weeks later the next one, several weeks later, the third one; It should also have other practical advantages in the beginning.

Now the................. are the prospects or prospects now of the practical application of attenuated viruses for human immunization. It seems to me that there are now strains available which one can use for progressive studies in human beings. This is not the sort of thing one can do as with the formalized vaccine where you can go out and inoculate millions; that is inadvisable. The procedure that one would use would be similar to the slow, stepwise, development that was used in the yellow fever vaccine. With the yellow fever vaccine, they had experiments similar to these which indicated that if they gave it to monkeys, that it had lost its activity on the liver, it still had neurotropic activity; yellow fever introduced intracerebrally in monkeys produces an encephalomyelitis, and they had no way of knowing that that would be harmless for human beings. So they progressed from 50, to 100, to 500, to 1,000, to 10,000, until they gradually acquired the knowledge which was necessary to proceed, and in the same way, we believe that one should go along with these attenuated viruses. I think that by next spring, when our present studies are completed on the human volunteers, we expect to make small lots of each of the three selected types, and by cooperation with people, both of the United States and in the different countries, from these same tested lots, accumulate the experience of what it does, so that it will have to be slow, we might learn a great deal in the process, but it seems to me that the prospects, ultimately, for reproducing the immunization which goes on in nature, but doing it with viruses which do not carry with it the dangers that may not occur in nature, are certainly more than mere hope.

Thank you very much.