

There was no great difficulty, through the use of modern techniques, in identifying the fact that this was a new virus that had never before appeared in India, and it appeared to be related to a group of viruses known as the Russian spring-summer complex.

At that time, the fear was that this represented yellow fever, which is a human viral disease that attacks monkeys, and India happens to be in a part of the world that, for reasons that are totally unknown, has escaped yellow fever until now, although the *Aedes* mosquitoes that transmit it have been there and there appears to have been ample opportunity for years for yellow fever to come in. At that time, in an etiological investigation, because there was some concern how this disease would spread, it became evident that we did not know what the vector of the disease was—that is, how it was transmitted. We did not know there were animals that formed a reservoir, and there was simply no information about the basic ecology in this particular area.

As an example, we were able to find—when I say “we,” I am speaking, really, of the Rockefeller Laboratory at Poona. They were able to find it killed monkeys in 8 days or less, but there was absolutely no information about how far these monkeys traveled, whether they traveled 100 miles or whether they ranged over 500 miles. There was also very little information about the parasites on these monkeys.

They did locate the virus in some *Ixodes* ticks, which, according to all the books, are ticks that attack rodents. On the other hand, they were unable to find the virus in rodents. And finally the problem was solved when field investigations by the Rockefeller people demonstrated that these ticks were also found on monkeys though there was absolutely no prior information to this effect. So that over a period of about 3 years, not on the basis of laboratory virology, but on the basis of field studies of the type that I have described that had to do with ectoparasites on animals and the whole ecologic web, it was finally possible to work out the transmission of the disease.

In this country it would have been ridiculously simple because we have this type of information about our lower animals and the ectoparasites, but the absence of this information in a country like India, where it could very easily have been obtained had there been an interest in it, led to spread of this disease over an area of several hundred square miles before the transmission could be understood and steps were taken to eliminate the ticks which were the actual carriers of the disease.

I might also add, in conclusion, that no one knows yet how the virus arrived there. It happens to be in one of the flyways that come down from Siberia, and it is thought it may have been brought by a bird. But in that instance the stumbling block to understanding the spread of this disease was simply a lack of knowledge of the fauna and the flora in the area. It just does not exist in these countries.

Mr. DADDARIO. You reemphasize the point Dr. Revelle made earlier that this is very necessary for developing countries which have the capability of developing good programs at small cost and of great effectiveness for controlling problems?

Dr. BENNETT. I would emphasize also that they are able to do it at relatively little cost, and that participation in this program will give it a type of respectability scientifically that is very necessary in these countries.