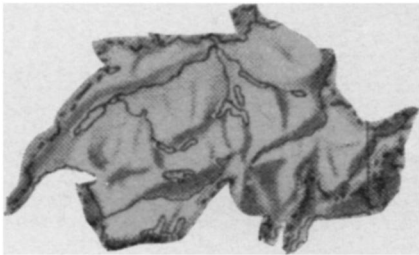


letter from Geneva



# Yellow fever threat

Indirect evidence leads World Health officials to worry about a spread from Africa to India

Evidence of resurgent yellow fever in East Africa has stimulated a widespread survey of Uganda, Kenya and Somalia to discover the extent of the threat.

Besides the danger of an epidemic in Africa—the last one, in Ethiopia in the early 1960's, claimed an estimated 200,000 lives—health officials are worried about the chance that the disease might spread to India, which is particularly vulnerable.

The evidence discovered by World Health Organization doctors was the presence of yellow fever immunity in blood serum collected from tribes living on the fringe of the Ethiopian epidemic area.

World Health doctors in Geneva cautioned that the evidence is not conclusive—actual yellow fever cases haven't been found. But scientists in the field say the tribes surveyed have never been vaccinated, so the immunity found—antibodies against group B arbovirus—couldn't have come from that. They say it is reasonable to conclude “recent virus activity” in the new regions.

Yellow fever researchers have proved the forest cycle of the mosquito to monkey infection. Indeed, says World Health vector control director, Dr. James Wright, the crucial problem is to keep the virus from infecting monkeys, basis of human epidemics.

There are two types of yellow fever, both caused by the same virus. When it is transmitted from man to man by the domestic mosquito, *Aedes aegypti*, it is called urban yellow fever, but when it occurs in a forest environment, it is called jungle, or sylvan, yellow fever.

In urban yellow fever, the *A. aegypti* mosquito transmits the virus by biting first a person who is passing through the initial three-day period of infection and later a susceptible person. An incubation period of 9 to 12 days in the mosquito must elapse before the insect can transmit infection in its bite.

In jungle yellow fever, man is infected through the bite of some mosquito other than the *A. aegypti*, authorities say. In South and Central America the virus has been isolated from forest mosquitoes of the genus *Haemagogus*, *Aedes leucocelaenus* and *Sabethes chloropterus*. *Haemagogus* are by far the most important vectors.

In Africa virus has been recovered from *A. simpsoni* and *A. africanus* caught in the forest. *Haemagogus* and *A. africanus* inhabit chiefly the forest,

where monkeys are the most frequently infected hosts.

The mosquito *A. simpsoni* is found in areas of mixed cultivation, often near human habitation. It bridges the gap between the deep forest and primitive settlements, and between man and forest monkeys that raid crops near these settlements. So far there is no evidence that yellow fever has ever been found in the Orient.

India has hosts of monkeys—in some areas protected for religious reasons—and also the *A. aegypti* mosquito. India, Burma and other Asian Governments today are extremely anxious not to expose their people to yellow fever virus.

If there is plenty of yellow fever in East Africa, a man could board an airplane in Nairobi with incubating disease, then get bitten by mosquitoes aboard. These mosquitoes could land in Delhi, and infect monkeys. Or a boatload of Indians returning from Africa could bring the virus.

This is why Asian health ministers were delighted in Geneva recently when the World Health Assembly approved the new dichlorvos automatic disinsection system for aircraft (SN: 6/29 p. 615). The insecticide system was devised by U.S. Public Health Service scientists and who has adopted it for standard use on all aircraft beginning Jan. 1, 1971.

The disease's reappearance in East Africa after almost 20 years shows the need for much fuller study of the distribution of immunity there, to follow the virus behavior in the next few years, says the international team.

On the team are members of the East African Virus Research Institute in Entebbe, Uganda; the Medical Research Center in Nairobi; the Tropical Disease Center at St. Clare's Hospital, New York, and the U.S. Public Health Service.

They especially recommend study of the cycle of yellow fever virus circulation in the bush babies (galagos) in dry areas, as contrasted with the monkey-mosquito cycle in wet forests.

They want now to cover the coastal eastern regions of Kenya and Somalia.

“An effective yellow fever vaccine has been available for many years,” they conclude, but “still we lack the epidemiologic and virologic information needed for its most effective use. The international control of yellow fever remains one of the major medical challenges of this century.”