

also Hector Baxter, Luis Pinzon, Louis Palma and Wilbur Lowe of the Malaria Control Force.

SUMMARY: The 25th Medical Detachment has conducted light trap surveys in Panama since 1951. A total of almost 150 localities have been surveyed one or more times using New Jersey-type mosquito light traps and the Shannon trap. In

addition some traps have been operated in Puerto Rico. During this time approximately 240,573 mosquitoes, 425,141 *Culiscoides*, and 39,023 *Phlebotomus* have been collected. A series of short papers will be published later giving the distribution of mosquitoes. Also, much of this material is being used in taxonomic studies by the writers.

"OPERATION MERCY"¹

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During the monsoon season of 1954 unprecedented floods created emergency conditions in East Bengal province of Pakistan. This is one of the most heavily populated sections of the world with an estimated 42,000,000 persons in an area of 54,000 square miles, which is approximately the size of the State of Florida. Three great rivers, namely the Brahmaputra, Ganges and Meghna flow through the flat fertile countryside of Bengal and during the monsoon season each year cause flood conditions. During 1954 the greatest floods in recent history inundated an estimated 15,000 square miles of East Bengal.

The two most serious infectious diseases in East Bengal are malaria and cholera. Malaria is the No. 1 killer of the province but cholera is more dramatic because of the explosive nature of outbreaks which result in high percentages of mortality. This is one of the few remaining foci of cholera in the world. Outbreaks of these two diseases were feared following the wake of the flood.

A call for help was cabled to the United States during the second week of August by the American Consul in Dacca. Urgency was placed upon the need for medical supplies and health workers. Within a few hours after the appeal was received in Washington, supplies and medical personnel were en route to Pakistan. The Public Health Service provided U. S. Foreign Operations Administration with a team of six persons for the flood emergency. The speaker was fortunate enough to be selected as the entomologist for this team. Mr. Joseph H. Coffey, sanitary engineer, also was assigned to the team to assist with malaria and mosquito control measures. This relief mission under the leadership of Dr. Alexander D. Langmuir, epidemiologist, was also staffed by Dr. William H. Clark, epidemiologist, Mr. Robert D. Shannon, administrative officer and Mr. Kenneth C. Lauster, sanitary engineer.

In order to illustrate the rapidity of this operation, Dr. Langmuir and the speaker were asked on August 13 if they would be willing to go to Pakistan. A short 43 hours later, on August 15, they left for Pakistan, arriving in Dacca in the center of the flooded area on August 19. Tons of medical supplies, including more than 30,000,000 anti-malarial tablets, had already arrived, airlifted there from various

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parts of the world via U. S. Air Force Globemasters and Flying Boxcars. In addition, 168 U. S. Army preventive medicine personnel had arrived from Korea, Japan and elsewhere. These Army men were integrated with Pakistani Army counterpart personnel and quickly began inoculating the local inhabitants against cholera in the flooded area.

The mosquito problem was very serious in the population centers of the flooded area. Refugees were crowded into school houses and other public buildings where they slept on the floor and "existed" for weeks waiting for the flood waters to recede. They were plagued by hordes of mosquitoes, mostly culicines. Although malaria is a serious problem throughout most of the year, floods actually decrease the danger from malaria because the normal breeding places of larvae of *Anopheles philippinensis*, the principal vector, are flushed away by flood waters. It is not until floods recede that *philippinensis* populations build up in the water ponds scattered through the country. However, this particular flood created excellent breeding places for other mosquito species.

Emergency spraying was made possible because of the 10 tons of dieldrin 50 per cent wettable powder and 250 compression sprayers procured for Pakistan by the U. S. Foreign Operations Administration and airlifted there by the U. S. Air Force planes. Refugees whose quarters were sprayed expressed their deep appreciation

following these insecticidal applications. They stated that they were able to sleep comfortably for the first time in many nights. Even though malaria did not appear to be an immediate danger to these refugees, the humanitarian aspects of such sprayings more than justified the use of the materials and labor for pest control. During the post-flood period, no epidemics of malaria, cholera or any other diseases were reported in the province. Pakistan Government officials were extremely grateful to the United States for aid given by our country.

In addition to the immediate benefits resulting from this emergency program, a great deal of progress toward permanent improvement of the public health of the Province was made during the period in which this emergency flood relief mission stayed in East Bengal. A long range malaria program was discussed with Pakistani officials and ways of implementing it were planned. Although an estimated 3,000,000 persons throughout East Bengal were already protected by the regular control activities against malaria, the U. S. Public Health Service relief mission personnel envisioned the possibility of extending this program to all of the 42,000,000 population living in this province. This will require reorganization of the present program and additional assistance from international organizations such as FOA and United Nations agencies. It is hoped that the expanded program can be started during 1955.