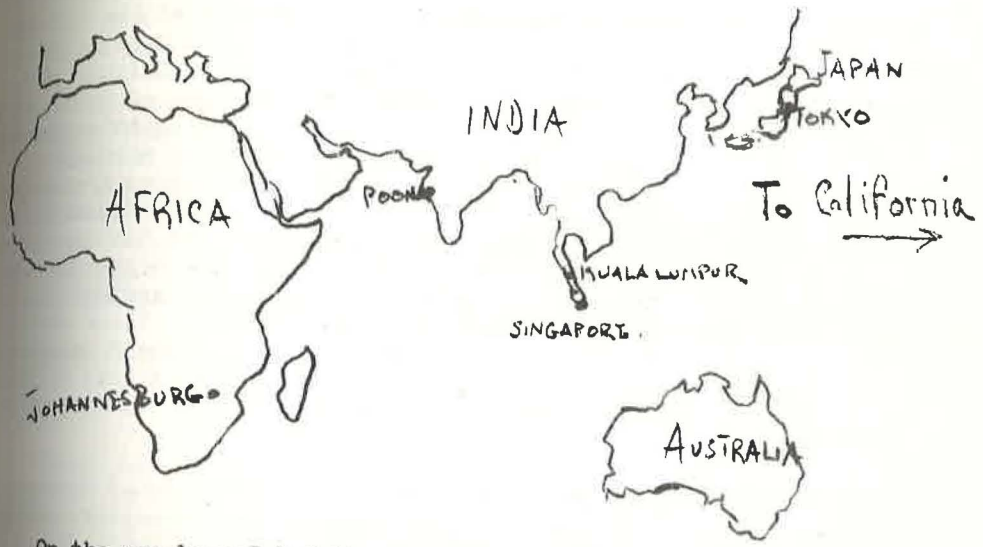
WORLD-WIDE STUDIES ON BIRDS AND VIRUSES

By C. Brooke Worth

At the beginning of August, 1960, I left Johannesburg, South Africa, where I had been associated for two years with the Arthropod-Borne Virus Research Unit. During this period we included birds in the list of wild hosts that were studied as possible reservoirs or transporters of a number of different virus types. Some of the viruses are related to Eastern Equine Encephalitis virus which caused the outbreak in New Jersey during the summer of 1959. Evidence that birds are of major importance in maintaining such viruses in nature in South Africa was not strong. However it remains probable that they are of greater significance elsewhere. Several virus types were actually recovered from birds, but most of these seemed to be peculiar to avian hosts and therefore of no concern to man or domestic animals. The birds were either shot or caught in mist nets, except in some cases when nestlings were collected, particularly young Cattle Egrets.



On the way home I had the privilege of visiting the Virus Research Centre in Poona, India. A new disease, related to Russian Spring-Summer Encephalitis, was discovered a few years ago in near-by Kyasanur Forest. This group of viruses is transmitted by ticks rather than mosquitoes, and birds became important in this instance because it is known that ticks are sometimes transported for great distances attached to migrating species. For this reason the Virus Research Centre has established a collaborative program with India's foremost ornithologist, Dr. Salim Ali of the Bombay Natural History Society. Birds are netted in Kyasanur Forest to find whether they are infected with viruses, while in addition expeditions are made to the Rann of Kutch during the autumn migration to net and band

birds that may be carrying ticks. The Rann of Kutch serves as a sort of funnel on the northwest Indian coast where Eurasian species from north and west of the great mountain ranges are channelled into the Indian subcontinent. Thus far no evidence of virus transport has been detected, but by the use of mist nets Dr. Salim Ali has obtained new records of the occurrence and distribution of several birds in India. This is similar to the results of "Operation Recovery" which has given data not formerly suspected when knowledge of range and relative abundance of birds was based only on shooting, conventional trapping and field observation.

In Singapore I met Mr. Loke Wan Tho, a wealthy tin mine and moving picture tycoon who is also an outstanding amateur bird photographer. He has published some of his artistic bird studies in the Journal of the Bombay Natural History Society, but in addition he showed me two large folios of his best work. A group of virus workers in Singapore are concerned about birds as hosts of Japanese B encephalitis virus, but investigations are still in an early stage.

A much more active group in Malaya has headquarters at the U.S.Army Medical Research Unit in Kuala Lumpur. The ornithologist here is Dr. H. Elliott McClure who received his PhD from the University of Iowa. His thesis there dealt with Mourning Dove populations, a topic of interest to all American bird banders in view of the special studies of this species sponsored by the F&W Service. Dr. McClure is an extremely energetic worker. His two chief projects in Malaya at the present time are centered in a coastal mangrove swamp and an interior forest. In the former he is mist netting birds, banding and then retrapping them. The interior forest contains many magnificent trees forming a canopy 200 feet high. One of these was selected for the erection of an aluminum ladder against its branchless trunk where an observation platform was built. These various activities are again ultimately bound to studies of Japanese B encephalitis. Dr. McClure's home is teeming with caged wild birds, one of which was the Bay Owl, a remarkable jungle relative of the Barn Owl with extraordinarily large eyes.

Japan, as may be imagined, is another center for study of Japanese B encephalitis. The most famous spot where research has been performed in the past is the Sagiyama heronry, north of Tokyo in Gunma Prefecture. This is in a grove of fairly tall trees in the middle of a region of rice cultivation near the coast. The birds have been protected for over 100 years by the local people, and recently a steel observation tower has been built at the edge of the colony to enable the public to enjoy nesting scenes at close quarters. The Japanese seem to be generally interested in natural history to an unusual degree. Busloads of tourists come to view the heronry, while refreshment stands do great business alongside the tower. The birds meanwhile go about their nesting chores as if oblivious to human spectators. I saw the Plumed Egret, Little Egret and Black-crowned Night Heron, while Cattle Egrets and Large Egrets were said also

to nest there. The season was at a late stage, with many fledged birds perched here and there and large young in the remaining nests. The young herons have been proved to be susceptible to infection with Japanese B virus by the bites of infected mosquitoes--and subsequently to infect other mosquitoes that bite them. However it has not been demonstrated that the birds carry the virus on migration or maintain it as reservoirs on a year-to-year basis.

San Francisco seemed close to home, but the story was the same. Here there is a good program of research in certain birds as spreaders of Western Equine Encephalitis virus, a relative of the New Jersey culprit. Birds that are particularly suspect as vehicles of the virus are Brewer's Blackbirds, Cowbirds, Common and Tricolored Redwings, English Sparrows and House Finches, many of which forage in enormous flocks from midsummer onwards. Bird banding does not seem to have been emphasized in virus studies in Japan or California but could undoubtedly yield useful information.

These remarks demonstrate the attention which birds are currently receiving on a world-wide basis in relation to diseases of economic importance, as well as some of the ornithological techniques that are being used to discover new information. In general it appears that bird banders have made a contribution not only through their past studies of avian population dynamics but particularly in their most recent exploitation of the mist net as a means of securing species that are otherwise virtually not obtainable or even not known to be present. Medically oriented biologists are making full use of the published experience of bird banders -- another example of the way in which basic or "pure" science is eventually applied to practical ends that could not have been envisioned by the original enthusiasts who simply wanted to learn the unknown.

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MABEL MEETS DONNA - OR VICE VERSA

"Thank you for your card of inquiry regarding our survival of the hurricane," writes Mabel Warburton from the Island Beach, N.J. Operation Recovery Station. "We made out fine. We began taking nets down around 7 a.m. The "Three Peppers" had theirs down around 7:30 and went back to Phila. The rest of us, Michael Logue, Bert Murray, Walter Bigger and I, had them all down by 8:30. We gathered up all the records, scales, and everything of value, loaded it in the cars, and left the Park.... We had no damage at the cottages. At the Magazine the ventilator blew off and some of the roof went -- it leaked as usual. The boys went hunting for birds and found several accidentals (one was a Bridled Tern.) Tuesday we resumed operations."

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