

## THE USE OF DDT RESIDUAL SPRAYS IN NATIVE MEXICAN HOMES FOR CONTROLLING *ANOPHELES PSEUDOPUNCTIPENNIS* MOSQUITOES\*

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After three years of accelerated research we believe the greatest promise for DDT in malaria mosquito control is in its use as a residual spray. This information was first developed by the Orlando, Florida, entomologists early in 1943 when wooden boxes and canvas cages were treated with 5 per cent DDT sprays at the rate of from 10 to 400 milligrams per square foot. Into these boxes and cages adult mosquitoes were released and within a few hours they were killed simply by resting on the treated surfaces. The amazing thing was that high mortalities of mosquitoes continued weeks and months after treatment when new batches of mosquitoes were placed in the treated cages.

Backed with this information James B. Gahan, B. V. Travis, F. A. Morton, and A. W. Lindquist successfully reduced the numbers of anopheline mosquitoes in buildings, first in the vicinity of Tallahassee, Florida, and later in Stuttgart, Arkansas, during August 1943. In Arkansas the tests were run in co-operation with John E. Taylor and L. H. Biggs of the U. S. Public Health Service and employees of the Arkansas State Board of Health.

A more important large-scale test was next conducted in 1944 in a large rice-growing section near Stuttgart where nearly every building in two 9-square-mile areas were sprayed with 5 per cent DDT sprays. This test was to determine the effectiveness of such treatment against *Anopheles quadrimaculatus* mosquitoes. The spraying was completed in June. Up until October, the end of the season, the treatment remained effective and reduced the adult mosquito population by over

90 per cent and the larval population of *A. quadrimaculatus* in the rice fields over 55 per cent.

During the summer of 1945, in co-operation with Dr. George C. Payne of the Rockefeller Foundation, Mr. Gahan conducted still other tests with DDT as a residual spray. This time his efforts were directed against *Anopheles pseudopunctipennis*, a potent carrier of malaria, breeding in rice fields in the State of Morelos, Mexico. In this instance Mr. Gahan directed his 5 per cent DDT residual spray onto the interior of all the native houses in two villages, each of which contained about 400 homes. These houses were made of adobe, cornstalks, or rice straw walls with thatched, tile, or straw roofs. The homes were sprayed in April and May. When I visited Mr. Gahan in early October 1945, some five months after his first treatments were applied, I was amazed to see how few mosquitoes we could find in the houses and rice fields in the treated villages compared to the number seen in untreated villages.

Acute and chronic malaria is common in the Mexican towns treated by Gahan. From what little information we could obtain it appears that a reduction of malaria was effected. However, at least three years of residual spray treatment will no doubt be necessary before positive evidence of the value of this method in reducing malaria will be known.

Working with another important malaria vector and in houses built of a variety of materials Gahan has again demonstrated the practicability of reducing anopheline populations with DDT residual sprays.

Kodachromes illustrated the types of places treated and techniques used.

\* Author's resumé of an address before a meeting of the Association at Washington, D. C., Nov. 20, 1945.