

THE DISK HARROW—A VALUABLE ADDITION TO MALARIA CONTROL EQUIPMENT¹

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An important farm implement transported overseas for farming purposes became an indispensable weapon in the hands of Navy and Army malaria control personnel to help eradicate the breeding places of *Anopheles farauti* in the New Hebrides-Solomon Islands.

Throughout the islands of the South Pacific, the important malaria vector chose by preference as its favorite breeding place, the water held in road ruts, hoofprints, small depressions, and ground pools. These sites were particularly favored during periods of prolonged or intermittent rains.

Numerous ruts and depressions, made by troops on tactical maneuvers, were formed in virgin jungle areas and in coconut and coffee groves on Efate and Espiritu Santo in the New Hebrides. Ruts and depressions were numerous throughout the flat lands of the northeast coast of

Guadalcanal and in the sandy soils of Bougainville in the upper Solomons. Ruts caused by vehicles carrying ammunition and fuel to storage dumps were particularly common. Miles of new and potential breeding areas were thus produced with the movement of troops in these jungle and cultivated areas.

The packing of soil by vehicle wheels inhibited the normal percolation of standing water and these "man-made" catchments remained as malaria hazards until permanently corrected. Hand filling by natives was practiced for several months until it was demonstrated that a disk-harrow drawn over these rutted areas was time saving and afforded permanent control.

Extensive disking was practiced during periods of semi-dry weather. When the soil is heavily saturated with water, the disk-harrow is not recommended, but it can be operated with ease and little difficulty during the dry season.

The disking operation raises the depression in the road ruts and allows standing water to spread evenly to adjacent porous ground. The natural porosity of the soil

¹The opinions expressed in this article are those of the author and are not to be construed as reflecting the views of the Navy Department or the Naval Service at large.

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Fig. 1. Road ruts. A favorite breeding place of *A. farauti* in the South Pacific.



Fig. 2. A recently disked road. This area looked somewhat like Fig. 1 before disking.



Fig. 3. An abandoned jungle road. Disked and overgrown with vegetation.



Fig. 4. The tractor drawn disk harrow.

is restored and allows for rapid ground absorption unless the depressions are too deep for the disk plates.

A spiked-tooth harrow drawn by jeep or weapons carrier proved effective in breaking up clumps in clay soils to provide an even surface for drainage.

The disked "jeep-trails" and unauthorized roads are soon overgrown by grass and vegetation and when fenced off with barbed wire or other artificial barriers they are no longer of any concern to the oil crews as persistent mosquito breeding areas.

Hermes reported the use of the disk-harrow in the United States for the control of salt marsh mosquitoes breeding in the

crevices of drying clay marshes. The practice of diskling to eradicate anopheline breeding was introduced overseas in the early days of the Pacific war and is believed to be the first wide scale use in the field of malaria control.

The initial plowing with the disk-harrow may appear expensive, but the economy in man power and oil compensates for its use and thousands of acres of road ruts were disked on the military bases of the New Hebrides-Solomon Islands as an adjunct to malaria control activities.

Bibliography

Hermes, W. B. and Gray, H. F., 1944. Mosquito Control. The Commonwealth Fund, New York.