
PROTECTING MARINES FROM INSECT-BORNE DISEASES *

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The rapid expansion of our armed forces early placed a drain on the Navy's reserves of trained malariologists. To meet the demand for personnel in this field, physicians, entomologists, parasitologists, sanitation engineers and others qualified in one or more phases of preventive medicine were commissioned and sent to special schools located in Naval hospitals, such as the National Naval Medical Center, and in various "Boot" camps. Here they were given intensive review in the diagnosis and control of malaria and other insect-borne diseases. When the courses had been completed the men were organized into malaria

control units and assigned to shore-based Naval activities and Marine divisions.

Malaria control units attached to Marine divisions were faced not only with the problems encountered by garrison and training forces, but also with those arising from protection of large numbers of men under combat conditions. Prior to an assault operation it was necessary for the malaria control unit to become well versed in the available medical intelligence about the objective. Troops were then indoctrinated through lectures, moving pictures, posters and other means of disseminating information as to the sanitary conditions they were likely to encounter and special precautionary measures peculiar to the invasion. Emphasis was laid on the control of insects and protection from their bites,

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the use of suppressive drugs where indicated, and avoidance of populated areas serving as focal points for the spread of epidemic diseases.

In addition to the indoctrination program malaria control units saw to it that all troops were properly equipped to combat insect-borne diseases, and that the quartermaster maintained an excess supply of this equipment to meet possible emergencies arising, for example, from an overlong campaign.

During the assault and initial occupational stages the malaria control unit landed and directed insect control activities as early as the tactical situation would permit. Before DDT became available in large quantities it was impossible to provide insect control concurrent with assault action and the distribution of insecticides was largely dependent upon hand operated devices. The properties of DDT, however, made possible its effective distribution via plane so that large areas could be rapidly and effectively treated for the control of mosquitoes and flies. Because airplane application offered a means of protecting advance troops from insects during the time when other control measures were inoperative, the method was investigated with enthusiasm by nearly all branches of the armed forces.

DDT was first sprayed from Navy planes under combat conditions during the attack on Peleliu, the planes operating from captured airstrips before the island had been secured. Prior to that time plans had been projected to use carrier-based aircraft to protect assault troops from insect-borne diseases. However, technical difficulties were not overcome until late in 1944 and it was not until about two months before the operation that plans were approved for spraying Iwo Jima with DDT during the attack.

The spraying of Iwo Jima was made a joint responsibility of Army, Navy and Marine forces in order to provide for uninterrupted insect control from the assault through occupational stages. The malaria control unit of the 4th Marine

Division, participating in the initial assault, was charged with the responsibility of co-ordinating all insect control activities on the island during the invasion. Members of this unit went ashore on D plus 5, where they found that mosquitoes were no problem, but that flies were abundant and threatened to become a menace. The concentration of artillery fire prohibited the employment of low-flying carrier planes for spraying purposes until D plus 9. At that time the situation was well enough in hand to permit two Navy torpedo bombers equipped with spray apparatus to lay swaths of insecticide in a criss-cross pattern over the occupied portion of the island. As a result the housefly population dipped to almost zero by the following day. Thereafter, a daily survey indicated those areas most in need of treatment. These were plotted on target maps and the appropriate carrier airgroup notified by radio to spray a given target area. When the carriers had withdrawn, Army air transports equipped for spraying DDT were flown up from Saipan and directed by the malaria control unit until relieved by the Garrison Surgeon. In the subsequent operation, the attack on Okinawa, the tactical situation permitted spraying on D plus 1 and 22 square miles of beachhead were covered by carrier-based aircraft before land-based planes assumed this responsibility.

Plane spraying had the disadvantages of other space spraying devices so that military personnel in occupied areas continued to rely heavily upon the early introduction of semi-permanent and permanent control measures and the use of hand operated apparatus for the distribution of insecticides. When it is considered that the major benefits of DDT were realized only shortly before the end of the war, the fact that malaria control units accomplished so much with so little is indeed a tribute not only to their resourcefulness, but to all agencies, civilian and military, whose research contributions implemented broader and more effective disease control programs.