

MALARIA CONTROL verses MOSQUITO CONTROL

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The proposition that the health of our boys in all branches of the service must be protected in every way possible is only common sense and is equally important with respect to those in all defense work. Health, morale and efficiency are three very essential elements in the building of any army of fighting men or workers and the third element is greatly dependent on the first two. It is generally realized that malaria can break through the defenses of the healthiest individuals and so drain their physical stamina as to render them almost useless. The reservoir of malaria infection in our southern states is large and the responsibility thrown upon mosquito organizations of many districts was heavy. We were, therefore, all glad to learn that the fight against malaria had been taken over by the U. S. Public Health Service under the direction of Dr. L. L. Williams, having headquarters at Atlanta, and with Mr. R. E. Dorer supervising operations in the State of Virginia. The first summer season of that campaign is now nearly ended and the article by Mr. H. H. Stage in the September issue of "Mosquito News" offers ample testimony as to the fine results achieved.

Such a malaria control offensive is of course aimed directly against the ANOPHELES QUADRIMACULATUS mosquito and as a result of its operations, in many areas where the QUADRIMACULATUS comprises the principal mosquito population, two objectives were served. Not only was the danger of spread of malaria largely eliminated but the personal annoyance from mosquito attacks was reduced. However, in other districts, especially urban areas and coastal sections, such as Norfolk, the present or potential mosquito population may be so large that ANOPHELES

family loses some of its importance by comparison of numbers for when forced to compete with salt marsh SOLLICITANS and TAENIORHYNCHUS, ground pool VEXANS and COLUMBIAE, not to mention the domestic QUINQUEFASCIATUS and AEGYPTI, the QUADRIMACULATUS is really "traveling in fast company". This fact has already made itself evident among personnel of the Navy, most of whose bases have been established on strategic shore lines. Our own immediate vicinity offers a good example. AN. QUADRIMACULATUS loses nothing of its threat as a disease carrier but if we did not wage a constant war on its cousins and nieces and aunts and other family connections there would be a little blood left for the QUAD. to propagate upon. The salt marsh Aedes SOLLICITANS and A. TAENIORHYNCHUS comprise the most important element of the so called "pest" varieties here, on account of the enormous broods which are hatched in uncontrolled areas and the viciousness of their attack as well as the distances to which they will migrate. Either troops or workmen which are exposed to a barrage of SOLLICITANS during the otherwise peaceful quiet of a summer night lose something of their efficiency in physical and mental reactions just as surely as if they had donated a blood meal to the malarial parasite. A program of mosquito control does not play any favorites nor question too closely the past history or future intentions of its adversaries. As a mosquito, it is an enemy and a harmless Culex APICALIS must suffer the same fate as the ANOPHELES QUADRIMACULATUS. But malaria control at present is designed along less stern lines and hesitates to move for extermination except where villainy has been proven. This seems a pity in cases where so much good could be accomplished at little extra cost.

An organization built only to combat AN. QUADRIMACULATUS on its usual home grounds would not contemplate the inclusion of a systematic inspection force such as is usually found so necessary to keep the urban mosquito problem in hand. Yet, as the direct result of systematic

work by our inspection crews this summer, more than 50 instances of heavy AN. QUADRIMACULATUS breeding were brought to light which otherwise would have continued to increase unhindered. The majority of these instances occurred in private fish ponds, Norfolk being cursed with great numbers of them. It is not exactly according to the rules for AN. QUADRIMACULATUS to breed freely in fish ponds - certainly not in such as are stocked with fish. Perhaps the war is responsible, but many rules seem to have been broken in Norfolk this summer for it was not uncommon to find prolific breeding in ponds both abandoned and stocked. From our point of view these AN. QUADRIMACULATUS were just as dangerous as if they had been born and raised in some bosky dell or other more normal habitat. Nevertheless, they would have been missed completely by malaria control forces which lacked inspection crews.

There is also the AEADES AEGYPTI, which is found as far north as Norfolk. As a matter-of-fact we have it in great numbers and at times it has caused us some concern. Any attack against this species by malaria control at present would be quite ineffective since its domestic habits make close inspection and coverage of populous areas essential if its numbers are to be materially reduced. Our experience here has been that the most prolific breeding is usually found in the older and more densely settled sections of the city where also are found most of the floating and foreign population. Particularly under war conditions, with rapid shifting of both military and civil populations, often from distant outposts, the danger of carriers infected with yellow or dengue fever slipping through our medical defenses becomes greater than in peace times. Of course the Public Health Service is fully aware of such a danger and is ready to meet any emergency, but to the older residents of Norfolk, whose friends and relatives were victims of former epidemics, the fear of yellow fever is perhaps even more vivid. We consider the AEGYPTI a dangerous enemy whose potential threat is a serious one which must

be met by special planning and organized action.

It is unfortunate that the Public Health Service does not include in its malaria control program such further steps as might be necessary to restrict the birth rate of *Aedes Aegypti* to definite limits through our southern states. At present our Norfolk City mosquito control organization is carrying this burden alone. Specialists in all lines have become the rule rather than the exception. There is a doctor who is specially equipped to combat each type of illness which might attack the human system. He is highly trained, outfitted with the most modern instruments and fixtures and respected by the whole community. But the one man who is indispensable around there is the family doctor who has given relief at some time or other to every member of the family. Malaria control has done a wonderful specialist's job but mosquito control is still indispensable in many communities.

The Army and the Navy have both taken seriously the defense against the mosquito. Lieutenant S. C. Billings, formerly entomologist for twelve years with the Agricultural Marketing Administration, Department of Agriculture in Washington, has been assigned to the Army Medical Corps here and is developing a program to eliminate *Aedes sollicitans* and *A. taeniorhynchus* breeding which has developed heavily in Government made hydraulic fills where Army barracks have been established. Rain water lodging in depressions and shrinkage cracks offered ideal breeding conditions similar to those created widely hereabout during war construction and which have caused a good deal of local difficulty. Lieutenant Billings' efforts are being directed along lines parallel with those of our organization and it is hoped that widely beneficial results may follow.

Both the Navy and ourselves were fortunate in the assignment of Lieutenant Donald MacCreary to the Sanitary Corps at the Operating Base here. A member of the Eastern

Association on Mosquito Workers, Lieutenant MacCreary was an entomologist at Delaware University where he was an associate of Dr. L. A. Sterns who is now serving with the Army. The Navy's holdings in this Fifth Naval District are large and are still increasing. Construction of new bases as well as the enlargement of older ones has developed many and varied mosquito problems which have had to be handled under many different commands with a variety of equipment and personnel. Lieutenant MacCreary has done a remarkably fine job in coordinating the different efforts which all started from scratch and his enthusiastic energy and happy disposition have made it a pleasure for us to cooperate with him in every way possible.

Yes, war has put the finger on the familiar mosquito as a number one saboteur, but the combined efforts of the Army, the Navy, the Public Health Service and the City of Norfolk will make its life an uneasy one in this sector. To our many friends in the Public Health Service we extend congratulations on a malaria prevention job well done, but our experience in Norfolk leads us to believe that an "all-out" offensive is needed to bring fully satisfactory results. It is our hope that another year may see all mosquito enemies brought under attack.

A Suggested Treatment for the
Elimination of Surface Cracks
On Hydraulic Fills

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Dr. J. S. Joffe and Dr. Victor A. Tiedjens of Rutgers University who recently made an inspection of the hydraulic fill at South Amboy, made the following recommendations as to the best means of eliminating the surface cracks on hydraulic fills composed mostly of clay and river silt.