

PAPERS AND PROCEEDINGS OF THE 14th ANNUAL MEETING

OF THE

AMERICAN MOSQUITO CONTROL ASSOCIATION

HELD JOINTLY WITH THE VIRGINIA MOSQUITO CONTROL ASSOCIATION, UNDER THE SPONSORSHIP OF THE A.M.C.A. SOUTHEAST CENTRAL REGION, WASHINGTON, D. C., FEBRUARY 23-26, 1958

PART I

THE RELATION OF MOSQUITO CONTROL TO DEFENSE

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INTRODUCTION. Members and Guests of the American Mosquito Control Association:

The opportunity to meet and exchange ideas with you at this Fourteenth Annual Meeting is a very timely and welcome one, timely because the nature of my subject concerns planning on a problem of mutual concern to you and me; and welcome because through this occasion, we can discuss a subject that needs the wisdom, experience and guidance that you possess. There can be no doubt of your practical wisdom as it is demonstrated by your selection of this date for your meeting. We residents of the Washington area greatly appreciated the selection of February, since we are certain to be spared any embarrassment from having the local mosquitoes appear on the welcoming committee. With such diplomacy in evidence, I am sure that the question contained in my subject will be equally well treated.

What is the relation of mosquito control to defense?

To answer this directly would imply that I spoke for the entire Department of Defense. The background and examples I use are Navy; but as so many of you know, our experiences are similar to those of the Army and Air Force and, therefore, in many instances are representative of military interests.

Let us for the moment talk about the relations between the American Mosquito Control Association and Defense activities as they are today.

I am sure that the first thought that many of us have is of a community where the local Mosquito Abatement District and a military activity are working together. Their mutual goal is to make the entire community a more enjoyable and safer place in which to live. A few of the examples that come to mind are Key West, Jacksonville, Norfolk, Newport, Vallejo, and Honolulu. Some of us have met and planned for common use of materials, equipment, and personnel to solve a common problem. The result has been a gratifying improvement of living conditions at a reduced cost to both civilian and military communities. Surely this is an example of cooperation worth remembering. Other examples of military agencies and civilian communities working hand-in-hand are emergencies and disasters.

Military assistance in the form of aerial spraying flights, ground operational crews and equipment, and professional personnel has been coordinated through the Public Health Service in hurricanes, floods and similar emergencies during the past few years.

A less direct benefit of our relationship is that of technical and operational train-

ing. The conferences, seminars, and work shops established by American Mosquito Control Association and its regional and local counterparts have been of much value to military personnel. Our knowledge of how to cope with practical mosquito control problems and related community problems, has been substantially increased. In turn, it is our hope that techniques, equipment and materials developed by some of our research efforts have been of value to you.

The emphasis placed by both the American Mosquito Control Association and the military departments on the betterment of training and efficiency is improving the general knowledge of the public on the importance of this work. Every citizen must cooperate if mosquito control is to reach the highest degree of effectiveness. Each effort to reach more people and acquaint them with what they can do about mosquito control problems contributes to our common benefit. Thus it can be said that our present relationship is accomplishing much and furnishes a firm foundation for future planning.

Now let's take a quick look at what our relations may be in the future especially in the event of a major emergency. It is difficult to prophesy what the future may have in store under any circumstances. A look at past problems may give you some ideas. By 1946 the military and civilian efforts to achieve effective mosquito control were considerable, but not before some very sad lessons had been learned.

In 1942 malaria began to build up in several of our critical civilian manufacturing areas and a program had to be hurriedly organized to make continued industrial support from these localities possible.

In the Army and Navy, 1942 to 1945, over 830,000 medically recorded cases causing a loss of over 14 million man-days were due to diseases borne primarily by mosquitoes. This was the equivalent of more than ten thousand men for the entire period. During the Korean conflict mosquito-borne diseases again accounted for a huge loss of manpower.

Today our Medical Departments advise us that yellow fever is again showing up in animals in Latin America. We are also told that the potential has been extended to the Gulf States. Add the knowledge that more and more evidence is being found to indicate the serious nature and potential of mosquito-borne encephalitis.

Our past experiences indicate that sources of malaria become more difficult to hold in check under emergency or disaster conditions.

The conclusion to be drawn is that the successful peacetime mosquito control operations must be continued under emergency conditions.

With this fact established, what type of obstacles under emergency conditions might tend to disrupt the continuation of successful community control operations? I believe the problems may be summarized in the following areas:

1. *Personnel*—The loss of trained key personnel due to manpower demands.

2. *Support*—The nation's resources and attention will be directed toward dramatic developments of an emergency.

3. *Disorganization*—The neglect of drainage facilities, sanitation practices and operations essential to mosquito control due to emergency conditions.

In the event of enemy attack, these facilities which we normally take for granted may be seriously disrupted or destroyed completely.

These factors appear, and are, formidable to any organized effort to keep an operating program effective.

But we are faced with the equal realization that as these factors increase with the intensity of the emergency so do the conditions favorable to mosquitoes and the health and morale problems they cause.

Organizing combined efforts of interested agencies at that time would be difficult and too late.

Thus the picture becomes one of much more to do and much less to do it with UNLESS every effort for pre-emergency planning is made.

The Navy, or any other agency that

plans alone, is not in a position to guarantee maximum use of all facilities that might be jointly used.

Consultation with Public Health Service, Federal Civil Defense, the military departments, and state and local agencies might make such a total effort possible. Some planning of this nature has already been accomplished. However, it is likely that your organization more than any other has membership that represents many of the interested agencies.

Your organization has the dedicated interest combined with the experience on how good community programs operate.

In view of this experience, would it not be appropriate that methods for furthering a plan for the coordinated action of all agencies concerned be considered by the Members and Directors of the American Mosquito Control Association? The completion of such a plan may assure that a necessary level of performance can be maintained in time of emergency. This I recognize as a Herculean task but unless every effort is made now while there's time for planning, it may never be done. I believe it can be done and that the accomplishment will be worthy of the effort in a nation-wide concept of defense.

MORE ABOUT MALARIA ERADICATION

FRED L. SOPER

I rejoice in the opportunity to talk "More about Malaria Eradication" to the members of the American Mosquito Control Association. The title is purposely vague even though the objective of the program for malaria eradication is quite specific; literally the termination of the infection of the human race by all species of *Plasmodium*.

For the skeptics, who may doubt the modern occurrence of miracles, I would say that the miracle of world malaria eradication has become inevitable as a result of technical, political and financial miracles of recent years.

Only a brief two decades ago, Dr. Mark Boyd,¹ a life-long student of malaria in the United States and abroad, asserted in his 1938 Presidential Address to the American Society of Tropical Medicine, 1. that malaria control would have to depend on local programs paid for by the populations to be benefited; 2. that the financing of

such programs could best be carried out through small, annual payments; 3. that malaria was not a problem to require the quick assembly of relatively large funds for its immediate suppression; 4. that malaria was to be attacked, not through a rapid campaign but through long term effort for gradual improvement. To Boyd it was obvious that permanent results could best be gotten by "building-out" malaria through permanent drainage and filling projects.

Today, 1958—20 years later—the nations of the world, banded together in the World Health Organization and the Pan American Sanitary Organization are engaged in a world-wide effort to eradicate malaria from the human race through a coordinated, simultaneous campaign to be completed within a comparatively short period of time, at a cost far beyond the local financial resources of many malarious areas.

The eradication program is based not on building malaria out, but rather on the prevention of the transmission of infection by chemical attack on such vector mosqui-

¹ Malaria: Retrospect and Prospect. Published in the American Journal of Tropical Medicine, Vol. 19, No. 1, Jan. 1939.