

quito Extermination Commissions within the States and attempts to pursue the researches which appear to be necessary to the practical mosquito control work of these commissions.

### Non Member States

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In a brief article it is obviously impossible to do more than mention the research and control activities directed against mosquitoes in the States that are not included in the field of activity of the Eastern Association of Mosquito Control Workers.

Research work on mosquitoes is being carried out mainly by the Rockefeller Foundation, with headquarters at Tallahassee, Florida, Mark F. Boyd in charge; by the United States Public Health Service at Savannah, Georgia, C. M. McGill, acting in charge; and by the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, at Orlando, Florida, W. V. King in charge; at New Smyrna, Florida, George H. Bradley in charge; and at Portland, Oregon, H. H. Stage in charge. Research on certain mosquito problems is also going forward in California mainly under the direction of W. B. Herms of the University of California. Incidental to control activities, some research information is being gathered in the Salt Lake City (Utah) Mosquito Abatement District, R. V. Chamberlain in charge, and in the DesPlaines Valley Mosquito Abatement District near Chicago, Illinois, J. Lyell Clarke in charge. In connection with research projects, mention should be made of the cooperative study of malaria and its control conducted by the Rockefeller Foundation, the Florida State Board of Health, Escambia County, and the City of Pensacola, with headquarters at Pensacola, Florida, with J. E. Elmendorf in charge; also of the research activities of the

Tennessee Valley Authority on malaria and related problems under the direction of E. I. Bishop.

The investigations at Tallahassee deal mainly with infection experiments with several species of ANOPHELES and with malaria in the treatment of paresis; those at Savannah deal largely with the biology and the natural and artificial control of anophelene mosquitoes. At Pensacola attention is being given to various procedures recommended for malaria-mosquito control and to means of cheapening these and making them more effective.

Investigations on ANOPHELES problems are being carried on by the United States Public Health Service at Memphis and Reelfoot Lake, Tennessee. Certain investigations on the distribution and habits of mosquitoes to form the basis of malaria-control activities are being carried on by health authorities in the Southern States, particularly in Georgia and Arkansas.

At the stations of the Bureau of Entomology and Plant Quarantine in Florida attention is given primarily to salt-marsh mosquitoes, their biology and control, as well as to the possibility of developing new larvicides applicable to various other species. The investigations at Portland, Oregon, deal mainly with the flood-water mosquitoes, particularly along the lower Columbia River, and include a study of the biology of these forms and the development of improved methods of control. Attention is also given to the breeding of ANOPHELES MACULIPENNIS, the principal malaria carrier of the West, and the relation of water impoundment to this and other species of mosquitoes.

The research at the University of California under the direction of W. B. Herms has been diverse, but it has dealt in a large degree with

the malaria-carrying species of that region and with the salt-marsh mosquitoes.

In connection with research work, reference should be made to taxonomic studies. The value of correctly identifying mosquitoes is well known. The leading authorities on mosquito identification in this country are Alan Stone and W. V. King and his associates, of the Bureau of Entomology and Plant Quarantine, the former in Washington and the latter in Orlando, Florida. Valuable taxonomic studies are being made by Members of the Eastern Association of Mosquito Control Workers, by members of the staff of the University of California, and by the Bureau of Entomology and Plant Quarantine employees at Portland, Oregon. Much taxonomic work is also being carried on by Robert Matheson of Cornell University, and L. E. Rozeboom of Johns Hopkins University is now devoting some attention to this field, especially with respect to the anopheline species.

It is important that we do not forget the valuable work on mosquitoes which is going forward in the Dominion of Canada. Arthur Gibson, for many years Dominion Entomologist, with headquarters at Ottawa, has been actively interested in mosquitoes. C. R. Twinn, of the Dominion staff, is doing excellent work on taxonomy of mosquitoes in Canada, and research on larvicides and other methods of mosquito control is going forward at the field laboratories of the Dominion Entomological service.

Throughout the South control of malaria mosquitoes is being vigorously prosecuted, mainly under the direction of the various State health departments. This work is more or less confined to the more populous areas and has consisted largely in draining or filling ANOPHELES breeding places. Much attention has

also been given to the development of methods of rendering drainage systems more permanent. The United States Public Health Service has given technical direction to a large part of this work, and that organization is conducting research along several lines relative to malaria-mosquito control at its station in Memphis, Tennessee.

One of the best large-scale anti-anopheline projects with which we are familiar is that carried out by the Tennessee Valley Authority under the general direction of E. L. Bishop at Chattanooga, Tennessee. In these operations malaria mosquitoes have been combatted by changing water levels, clearing the banks of reservoirs, and the application of paris green, by airplanes and otherwise, and oils as larvicides.

In California the anti-anopheline work is being carried out along with control activities against pest mosquitoes in a number of counties which have been organized under the State pest abatement laws.

Oregon has recently passed a pest-abatement law which it is believed will make anti-mosquito work in that state more effective. Control activities thus far have been largely in the vicinity of Portland under the joint auspices of the city of Portland, the county of Multnomah, and the Federal Works Progress Administration.

Mosquito control in the vicinity of Salt Lake City, has been under way for many years and has accomplished outstanding results. It has also been under way in the DesPlaines River Valley near Chicago for several years, and mosquito annoyance in the populous area affected has been very markedly reduced. The work there has been a combination of improved drainage, the use of larvicides, and the employment of natural enemies. Other mosquito operations have recently been undertaken in the vicinity of Chicago.

There is probably more anti-mosquito work going forward in Florida than in most of the Eastern States not in the Association. Seven counties have organized mosquito-control units dealing mainly with the salt-marsh problems. The necessity for controlling these pests, if the resorting possibilities of the State are to be fully developed, is being recognized.

Here and throughout the country local mosquito-control projects have been prosecuted during recent years largely with funds supplied by the Works Progress Administration. It is obviously impossible even to list these in a short article.

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#### ACTIVITIES OF EASTERN ASSOCIATION OF MOSQUITO CONTROL WORKERS

Twelve members attended the meeting and inspection trip in Virginia during the week of February 14th to 21st. At this meeting a committee was appointed to prepare this trial publication. Inspection of the work around Norfolk, Virginia Beach and Roanoke Island, North Carolina was carried on revealing a vast amount of mosquito control work in this area. Novel and interesting methods and equipment were viewed by the party. A very interesting feature was a boat trip through Dismal Swamp to Lake Drummond

In Atlantic City on March 21 while attending the Annual Meeting of the New Jersey Mosquito Extermination Association, a meeting of the Executive Committee of the Eastern Association of Mosquito Control Workers was held at which the proposed new Constitution and By-laws were presented and discussed. An interesting feature to all of our members was a proposal to charge dues to cover the cost of a regular quarterly publication of which this is a sample.