

ASSOCIATION NEWS

Report of the May 24-25, 1946 Meeting: Papers and Discussions, *continued*

SHOULD MOSQUITO COMMISSIONS UNDERTAKE OTHER INSECT CONTROL PROBLEMS REQUIRING COMMUNITY EFFORT?

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The question, "Should mosquito commissions undertake other insect control problems?", is like many other questions in that there are two sides, the pros and the cons. It is the aim of the writer to present the case as he sees it. No doubt many of you will disagree with the arguments set forth. Nevertheless, it is an honor to be invited by this association to discuss this very important and timely topic.

It is assumed that the term, "other insects" implies all species that have a nuisance value and those of medical importance but does not necessarily include the agricultural pests. In this discussion it is deemed advisable to consider the matter from the standpoint of prevailing conditions in our state, namely, New Jersey. The conditions existing in other states, and the organizations and facilities for similar work outside of New Jersey, are not known well enough by the writer for consideration in this paper. Again, many of you from other states may have conditions so different from those existing in New Jersey as to present logical cases in direct opposition to the points which are brought out below.

WHY MOSQUITO COMMISSIONS MIGHT UNDERTAKE OTHER INSECT CONTROL PROBLEMS REQUIRING COMMUNITY EFFORT

(1) County-wide Organizations.

In New Jersey we now have 15 active

county mosquito extermination commissions. Each of these commissions has well organized staffs, including the superintendent, in some cases executive secretaries, the necessary field foremen and a field force. Due to the long experience in mosquito control work in most counties the members of the working force know their county intimately. With the available maps, charts and data on the county it would be a very easy matter for the county commission to carry out the control operations, provided sufficient knowledge of the problem at hand were available to the county organization.

(2) Equipment.

Almost every commission in New Jersey has machinery and equipment which could be readily adapted to other insect control problems. The commissions have the trained personnel to maintain and operate this equipment.

(3) Other Aquatic Forms of Insects.

The personnel of the county mosquito extermination commission has a very broad knowledge of aquatic insect life due to its long experience in dealing with mosquito problems. The various gnats which breed in water and which are very close relatives of the mosquito can undoubtedly be controlled more easily and more economically by a mosquito commission than by any other government organization now available.

POSSIBLE REASONS WHY COUNTY MOSQUITO EXTERMINATION COMMISSIONS SHOULD NOT UNDERTAKE OTHER INSECT CONTROL PROBLEMS REQUIRING COMMUNITY EFFORT

(1) Mosquito Control, an Unfinished Job.

I am confident that my many friends from the various county mosquito extermination commissions in New Jersey will agree with me when I say that we still have mosquitoes to control in nearly every county in the State of New Jersey. This is no criticism of any man or any commission in New Jersey but does emphasize the magnitude of the mosquito problem. There is still much work to be done by all of the control agencies before we can live in complete comfort without being pestered by mosquitoes. I am afraid a considerable period of time will elapse before we have the mosquitoes eliminated in any county in the state. Everyone appreciates the biotic potential of the mosquito, and the habits of mosquitoes, and I believe we all agree that we will be doing a great service to the various counties and the state as a whole if we keep the mosquito population at a low level.

(2) The Dissimilarity Between Mosquitoes and Other Insects.

Insect control problems in general are very complex. Regardless of the insect, or I might add, the arthropod, which includes ticks and mites and others, we have the host plant or the host animal as well as the biological enemies of the species in question to consider. In the case of mosquitoes, and particularly of the larval stage, the question of the host is not important. However, other forms of animal life existing in the water, which we might consider as a host of mosquito larvae, have to be reckoned with in many cases. Within recent years considerable attention has been devoted to the control of the adult mosquito. We can cite the example of protecting outdoor gather-

ings against attack by adult mosquitoes. One of the first considerations is the question of the effect of the treatment on surrounding vegetation. We must also consider the effect of the toxicant and repellent on the human subjects as well as their clothing.

Everyone who has had any experience in the control of larval forms of mosquitoes soon realizes that the species of mosquitoes involved, with few exceptions, is of minor importance. All species of mosquitoes during their larval stage live in water with the exception of *Mansonia perturbans*, and a few others, and sooner or later must come to the surface of the water for air, thereby making it possible to destroy the larvae, regardless of the species, when they come to the surface of the water, with chemical substances.

Offhand, I do not know of any group of terrestrial insects or arthropods where all species have such a point in common. Another important factor to take into consideration is that many species of mosquitoes are capable of flying long distances. Few of the other insects or arthropods with which I believe mosquito commissions would be concerned ever travel such long distances, but instead, remain more or less in local areas. This, to me, indicates that each member of a field control unit would be required to know intimately all the details concerning the life history, seasonal history and habits of all species which the commission attempts to control. To properly indoctrinate each man on the force would require considerable time and effort on the part of the leaders.

(3) What Insects Should the Commission Undertake to Control?

Under the existing conditions a mosquito commission is working in accordance with a specific law. We must assume that before a commission undertakes to control other forms of insects a revision of the law would be necessary. As was pointed out above, all mosquitoes

breed in water and for the most part mosquito control agencies have been concerned only with the aquatic stage of the mosquito. In other words the mosquito control agencies have dealt with impounded water and flooded areas. For the most part in New Jersey these mosquito breeding areas are such that mosquito control operations can be carried out with very little interference with valuable crops, ornamental plants, etc. In other words, the mosquito breeding area might be considered as wasteland or a large part of public property. It would seem, therefore, that practically any insect problem other than mosquitoes would involve private property, such as the city and urban lots, and when we have to deal with all private citizens even in a localized area we immediately run into complications. Let us take the house fly as an example. House flies normally breed in garbage dumps, in and around animal shelters and the backyard refuse dump. The mosquito commission would encounter little difficulty in carrying out the necessary operation on garbage dumps but how about the private properties in the outlying areas around the city or municipality where the municipal ordinance permits the keeping of a cow, a flock of chickens or a pig? Also, we should consider the refuse in the backyards of many homes. Unless all such areas are cared for the fly control program would probably fail. Let us again assume that fly control be undertaken. In many instances, especially around city property, the owner would immediately put up the argument that he was more troubled with the eastern tent caterpillar crawling on the laundry hanging on the clothes line in the backyard, getting inside the house and destroying some prize ornamental plant, than he is about the house fly. The argument very quickly arises, if you are going to do something useful to the county, to the municipality or for the individual, why not take in a broader scope and control all of the insect prob-

lems. There are many other examples that could be cited but time and space do not permit. We must assume from the start that it would be impossible for a mosquito control agency to undertake the control of all insects in the area under their supervision. The question is, "What species should be considered in such a program?" The writer can visualize serious difficulty in getting adequate legislation when the insect control program is extended beyond the field of mosquitoes.

(4) Possible Interference with Other Agencies.

In New Jersey we have a number of agencies that are authorized by law to undertake insect control on a community or specific area basis. For example, we have the Bureau of Plant Industry of the State Department of Agriculture that is actively engaged in insect suppression work. However, the activities of this organization are confined chiefly to agricultural problems although in the case of the Dutch elm disease, which is caused by an organism which is disseminated by elm bark beetles, the Bureau of Plant Industry of the State Department of Agriculture is carrying out a program in municipalities as well as forest areas in suppressing this serious disease of our elms. The Bureau of Animal Industry is also authorized to suppress serious insect problems which might affect the animal industry in the State of New Jersey.

The State Department of Health is also authorized by law to engage in insect suppression work and is now actively so engaged. Mosquito control agencies, in New Jersey at least, cannot afford to try for legislation which would permit such agencies to engage in insect control work that would interfere with the activities of the health department.

The U. S. Public Health Service is another agency which has authority to carry out insect control operations where

it is deemed necessary and advisable for the protection of public health.

Another agency which does not carry out control operations but which does advise the individual on how to secure relief from insect problems is the agricultural extension service of the State College of Agriculture.

Last, but not necessarily least, is the commercial pest control operator. The pest control operators can be divided into two groups: (a) those that control insect problems within structures, such as houses, factories, warehouses, etc., and (b) those that carry on spray service for the control of insects attacking plants and animals. This phase of insect control has grown rapidly during the past ten years. Now that World War II is over, many servicemen who gained valuable experience in pest control through the various branches of the armed services are going into this type of work. If the pest control operator, regardless of the phase of work he undertakes, can do the job at a reasonable cost to the property owner it would be advisable to leave such activities as far as possible to private enterprise. We know of cases where pest control operators have sprayed large areas with weed killers to keep down vegetation for the benefit of individuals subject to hay fever. There are also instances where pest control operators have sprayed comparatively large areas to control ticks. The spray service organizations have sprayed large woodland areas for the control of such insects as normally attack forest and shade trees and ornamental plants. Many pest control operators are called on daily for control of the common house fly, fleas in the home, bedbugs, rodents and many other pests.

With all of these agencies and services now available at fairly reasonable costs to the property owner, just how far should county mosquito extermination commissions go in actually undertaking or advocating other insect control problems requiring community effort?

POSSIBLE COOPERATION BETWEEN MOSQUITO EXTERMINATION COMMISSIONS AND OTHER AGENCIES IN INSECT CONTROL PROBLEMS REQUIRING COMMUNITY EFFORT

An attempt has been made to present some facts and possibilities concerning possible activities of mosquito control agencies in endeavors other than those concerning mosquitoes. Mosquito control agencies can without a doubt play a very important part in community activities on a purely cooperative basis. As an outstanding example we might cite the cooperative project on malaria between the State Department of Health, the county mosquito extermination commission and the Department of Entomology of the New Jersey Agricultural Experiment Station. These agencies, especially the first two mentioned, are making real contributions. It would seem advisable, therefore, for the mosquito commissions in New Jersey to cooperate with any other state agency or county agency as far as possible. Let us suppose that there is some important insect problem that should be tackled on a community basis where the county mosquito extermination commission can play a part. Would it not be advisable to see first if the particular problem could not be handled according to existing laws where, for example, the State Department of Health or the State Department of Agriculture could contract with the county mosquito control agency to carry out certain phases of the control operations? This might be done without modifying the state mosquito laws in any way. Before the county mosquito extermination commissions attempt to revise the now existing laws so that such agencies would have the legal right to undertake other insect control problems requiring community effort it would certainly be advisable to take stock of the now existing agencies rather than taking the chance of upsetting the present mosquito control laws and lose out in the long run.

We have all had some experience in getting mosquito control commissions established in the various counties. One of the first prerequisites has been to educate the citizens of the county concerning the importance of mosquito control. The same procedure would probably be necessary in case of controlling other insects on a community or county-wide basis. The task would be difficult but not impossible.

DISCUSSION

(*Mr. Ruth called on Mr. Dorer.*)

Mr. Dorer: In Virginia the Mosquito Commissions are under the State Department of Health. The State Department has funds appropriated to the Commissions to supplement their local appropriation and the Health Commissioner is Chairman of all the Commissions. The mosquito control work is under the Health Department. In addition to mosquitoes, from time to time other problems come up in connection with other insects. For example, the day before yesterday we were called on to do something about Rocky Mountain fever ticks. We did not know too much about the control of ticks and we used mosquito men to spray areas in the residential section with DDT. We hope it will do some good but we made it very plain that it was an experiment and we were not sure of the result. This demonstrates that when the Health Department gets another problem they call on us, and we use our force to help them. In the last eight months they have put rodent control under us. In our state we have typhus fever and the control of rats. Because there was no other appropriate division of the Health Department it seemed logical to put it under us. That's the way it's going in our state—any time they have any public health problems dealing with insects or rodents they call on us.

Mr. Williamson: The tick problem and the spotted fever problem were also brought to our attention. Our law seems

to be ideally suited to reach out and take under control insects that require community action. By community action I mean insects that are infesting a large area. I do not mean roaches or bedbugs. These do not require community action. I think every mosquito commission means to expand its facilities. They are ideally set up, with trained personnel and require only additional funds. Our law was amended this past winter to allow us to approach the control of these other insects. Previous to the amendment our law specifically stated that the money appropriated could be spent only for mosquito work. Our law is so designed that we have entry on private property and there is no question of an owner prohibiting us from going on the property. If he suffers damage from our work he has recourse to the courts.

Personally I do not agree with Dr. Pepper in his report. Mosquito commissions are the ideal means to take on additional work. If they do not do so other units of government will be set up. It would be an extravagant procedure and duplication of effort; and eventually an organization would grow up that would absorb the mosquito commissions. As a mosquito control worker I prefer to absorb the other fellow than have the other fellow absorb me.

Mr. Sammis: As Mr. Williamson has said, if we do not give proper consideration to this idea we certainly are going to show that we are not at all open to advancement and that we are not capable of increasing our activities. But if we do become absorbed, which might possibly be the case, we may find ourselves doing other kinds of work rather than mosquito work to the absolute exclusion of mosquito work.

Dr. Pepper: I purposely laid out the program to start discussion. In referring to Mr. Williamson's argument, I think the strongest point that the mosquito commission can claim is that the mos-

quito is a community-wide and even a county-wide problem from the standpoint that we have many species of mosquitoes of which several may fly long distances. A tick moves only by crawling or being transported by some animal and we know there are cases in New Jersey where the individual property owners in urban sections have completely or nearly completely eradicated ticks from their property. A person could not free his property of mosquitoes due to their habits and this is the point that I am looking at. The question of whether or not mosquito commissions are going to be absorbed I think is on the fence. They can go either way. I can see where if we do not absorb somebody we might get absorbed by somebody. Regardless of which is which, it needs very deep and careful thinking and planning and not a fly-by-night or spur of the moment activity. I am trying to base my discussion around activities in New Jersey.

Mr. Williamson: I don't want Dr. Pepper to think I am arguing against him. Dr. Glasgow has information on migration of ticks in our locality. We do know they hitch-hike or walk. Another insect problem requiring possible community action is the invasion of the Japanese beetle. You cannot expect one man to control that insect on his small plot and give relief to the whole countryside. Someone must do the job on a community-wide or county-wide basis—not on a spot control basis. The commissions seem to have authority to do that.

Dr. Pepper: That's just one of the points I want to illustrate. In New Jersey our State Department of Agriculture has, over a 10-year period, had a Japanese beetle suppression program. The Japanese beetle is an agricultural pest and that is one of the things I had in mind when I said where are you going to draw the line. You probably do not have the organization in New York as

we have in New Jersey. We had an active program on a sectional basis under the supervision of the State Department of Agriculture on Japanese beetle suppression. There are other problems and it is a case of where are you going to draw the line. I think we all agree that most of the mosquito control agencies are centered around controlling insects of a nuisance value or of medical importance. If you are going to undertake a control program on a community-wide effort you must first take into consideration where the money is coming from. As long as you keep it within the county and you can sell the freeholders on such a program, where they appropriate money and contract with the mosquito commissions to carry out the work, that may be one thing. If you put it on a state-wide basis and revise laws, what would happen in case of the State Department of Agriculture, the Bureau of Plant Industry, Animal Industry, Department of Health, Agricultural Extension Service and maybe the College of Agriculture and Experiment Station? They might all like to get a hand in it. I can see where it might be a real opportunity to work on a county level where you can sell your program to the appropriating body and contract with them to do the work without interfering with the present existing laws.

Dr. Glasgow: I have been very much interested in Dr. Pepper's balanced presentation of the problem and in the discussion that followed. It is a subject upon which I have done a lot of thinking. I used to teach medical entomology and since I came to New York I have been interested in the general subject. A few years ago, up to 1938, I collected photostatic copies of all mosquito laws passed by the states and territories of the United States. I hope sometime to review those laws and report on them. We have missed some of the important points in this discussion. Pest control assumes several aspects. There are those pests which are of strictly local importance, bedbugs

and fleas; agricultural pests are usually pests that do not move in numbers from farm to farm or garden to garden. The property owner can take care of his own problems. Another group of insect problems arises where insects move from area to area. Here control is essentially a community problem.

Mr. Williamson spoke of the record of spotted fever on Long Island. The first case of spotted fever was reported in 1912, with two in 1913. No other cases were reported until 1924. Since that time the disease has advanced progressively in the number of cases reported and in the area involved. Altogether there had been 82 cases and 16 deaths in one county by the end of 1944. No endemic cases have been reported except on Long Island. One of the explanations advanced has been that a group of ponies had been brought from Arizona to Long Island and it is suggested by some, whether true or not we cannot say, that these ponies brought in ticks with them. The ticks matured and spread the infection and the disease became established.

It seems that the responsibility of a commission might vary according to the pests and the occasions for pest control that might exist locally. There will be no idea of requiring the mosquito commissions to undertake the control of orchard pests. The orchardists will have to look after their own problems. Codling moth might fly from a neglected orchard to a well kept orchard but the hazard is not so great that it involves community action. As for the other agencies which might be involved, I cannot quite see a department assuming responsibility for the control of mosquitoes, black flies, and ticks and do it adequately for the entire state. It seems much better to have community action for pest control where you have a pest that can be controlled only by community action. It is best to have the control arise through local initiative, administered by local officials and financed by local taxes. That is the way it is done in the few counties in New York State

where we have such commissions now and we are hoping next winter to have a law whereby any county, city, village or part thereof may organize as a pest abatement district. The law is patterned after the present laws now in force in California and in Utah.

I have just outlined a few of the problems that seem to me appropriate for consideration by the existing mosquito commissions. The commissions should be given power to do anything necessary and the individual property owners have recourse through the courts in case of damage.

Dr. Pepper: It has been demonstrated that you can control mosquitoes. I do not know that such has been the case with ticks. Let us assume that you undertake this tick control problem for five years and at the end of that time you still have your 16 cases of spotted fever per year. What is apt to happen?

Dr. Glasgow: The mosquito commission is an operating group, not a research group. There are agencies charged with responsibility of what will control mosquitoes and ticks. Your group at Rutgers has been doing a service in working out fundamentals of mosquito control. Commissions apply this work. They will not undertake tick control until the problem is presented to them. Dr. Collins and I are carrying on work with the State Department of Health. Last year we did some work in the tick area and we find that there is real promise of successful control. Dr. Smith and others of the Bureau of Entomology, working in the South, have found promise of effective tick control along somewhat similar lines as ours. We are going ahead and we are going to try to find something to control ticks. Mr. Williamson is going to be required by his own neighbors to control them as soon as we can tell him what to do. The search for control measures is not the problem of the county commission, that is the problem of the research agency.