

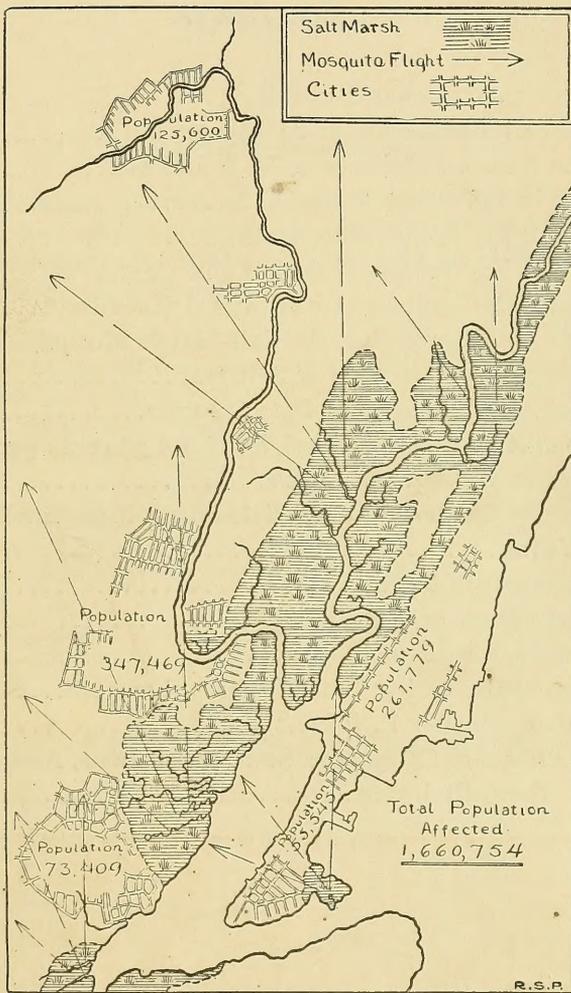




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# THE MOSQUITO MUST GO

NEW JERSEY  
AGRICULTURAL EXPERIMENT STATIONS  
CIRCULAR/III



## Why We Must Drain Our Salt Marshes.

Note the flight of salt-marsh mosquitoes as indicated by the arrows and the large populations affected.

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### ERRATA

Page 6, cuts A and C should be interchanged.

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**NEW JERSEY**  
**AGRICULTURAL EXPERIMENT STATIONS**

CIRCULAR 111

**THE MOSQUITO MUST GO**

Complete suppression of the salt marsh mosquito in New Jersey is practicable and opens the way for an increase of more than \$500,000,000 in the taxable values of the state to be achieved within a period of 20 years

The salt-marsh mosquito by reason of its ability to produce unbearable discomfort among the people within its reach has proved, and is likely to continue to prove (unless something is done to prevent it), a most serious retarding influence on the agricultural, seashore, industrial and urban development. The natural movement of agricultural capital and labor from regions of high agricultural land value and distant markets to the region of low agricultural land values and nearby markets is to a great extent prevented by the presence of these insects. The utilization of the unexampled seashore resort advantages is without doubt tremendously retarded, and the development of industrial enterprises along the waterways and coasts is seriously interfered with by this pest.

**The Agricultural Ratables Can Be Increased \$100,000,000**

The development of the agricultural resources would receive both a direct and an indirect stimulus from the drainage of the salt marshes. At the present time the natural movement of capital and population from high-priced farm lands, remote from markets and outside the state, to low-priced farm lands within the state with nearby markets, is hindered by the salt-marsh mosquitoes. The latter, by their 30 or 40 mile flights,

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\*Prepared for publication April 17, 1919 by Thomas J. Headlee, Ph. D., Entomologist, and Mitchel Carroll, Ph. D., Assistant Entomologist.

reach a large proportion of the state's area. If these pests were suppressed many farmers from other states, who yearly make inquiries concerning New Jersey's cheap lands and mosquitoes, would undoubtedly move into the state, causing a rise in farm valuations. But a still further rise in agricultural valuations would result from the creation of enormous markets through the settlement of our coast resort area. These markets could not fail to cause an increase in farm valuations throughout the state.

The average value of improved farm land in 8 South Jersey counties (Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, and Ocean), of which there are 631,000 acres, is approximately \$56.00 per acre. Considering the productive capacity of this land under proper farming, its value should be at least \$150.00 per acre, making an increase in value of \$94.00 per acre, amounting to a total of \$59,000,000.

In these 8 South Jersey counties there are 600,000 acres of land not at present classified as farm land, with an average value of not over \$20.00 per acre. This land, if improved and used to its capacity, as has already been shown in such areas as that about Hammonton and Vineland, should be worth at least \$100.00 per acre; making an increase of \$80.00 per acre and amounting to a total of \$48,000,000.

**Suppression of the Mosquito By the Removal of the Stagnant Water On the Coastal Marshes Will Open the Way for the Conversion of 140,000 Acres of Waste Ocean Front Lands into \$200,000,000 of Assets Within the Next 20 Years**

Along the 150 miles of coast from Atlantic Highlands to Cape May there are 160,000 acres or more of home or hotel sites swept by ocean breezes and blessed with a delightful, clear, sunny summer climate which encourages bathing, sailing and other out-door seaside activities. On only 3300 acres of this area has any attempt at development been made.

Proximity to the densest centers of population in the United States offers New Jersey an unequalled opportunity to develop her seashore resources. The Jersey coast is not only the most ideal but the most convenient and the most easily reached recreational region for the majority of the pleasure-seekers of the East. For the summer vacationist, for those who have but a fortnight, week or week-end to spend away from work or business, and for the commuter, there is no other large region within convenient reach of our large centers of population which offers so many attractions as the Jersey shore. It is possible to commute from any resort on the coast to New York or Philadelphia.

**Large As Is The Present Valuation of the Seashore Resort Industry It Has Not Yet Realized More Than 10 per cent of Its Possibilities**

At the present time the seashore resort industry has developed taxable values to the extent of \$262,000,000, or about **9 per cent of the total ratables of the entire state**, as listed by the local assessors and the county boards of taxation.

This valuation of \$262,000,000 has been developed on **7/10 of 1 per cent** of the state's area; and the land occupied is of such a character as to support in most cases no other worth-while enterprise.

In the boroughs, cities and shore portions of townships from Keyport to Cape May Point, inclusive, there are 160,000 acres of which only about 33,000 acres have been divided into building lots. Accepting the division into building lots as an evidence of an effort to develop, we find that only 14 per cent of the available area is at present utilized. In view of the fact that many thousands of these lots are vacant and have not been used for building or any purpose whatever, it is safe to assume that not more than 10 per cent of the opportunities for seashore resort development have been utilized.

**The Salt-Marsh Mosquito Pest Has Been, Is Now, and Unless Eliminated Will Continue to be the Chief Retarding Influence in the Development of the Coast Resorts**

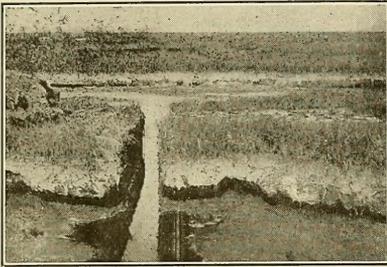
Anyone familiar with the history of the seashore resort business from Atlantic Highlands to Cape May Point can name instances in which large enterprises have been started and have proved absolute failures because of the mosquito pest. Unlike the native or the industrial worker, the pleasure-seekers are able to come and go much as they please. Hence, with the exception of a relatively small proportion, they will not invest their money where mosquitoes are prevalent, nor return annually to such a place. And, by the way, it is this multitude of pleasure-seekers which has carried the reputation of the New Jersey mosquito throughout the length and breadth of the land.

A very large proportion of the capital which has been in the past, and which will be in the future, used to develop the resort industry, comes from outside the state.

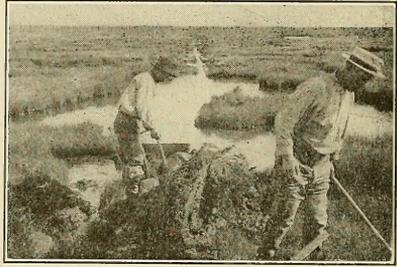
Ninety per cent of the patronage (**constituting a clear addition to the state's resources**) comes from without the state. This outside capital and patronage are not attracted to places which suffer from the mosquito pest.

**\$200,000,000 is a Very Conservative Estimate of the Possible Increase in Ratables Within the Next 20 Years for the Coastal Area**

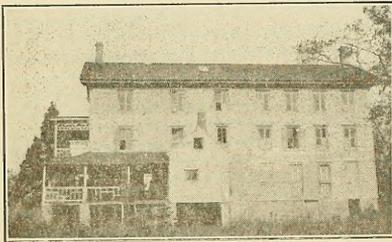
If the chief obstacle (the mosquito) to the development of the state's seashore resort resources is removed, a most conservative estimate of the increase in values of the coast resort area would be \$200,000,000 within a period of 20 years. Indeed, the last 20 years has shown an increase of approximately the above amount, and it is entirely reasonable to anticipate a much larger increase during the next 20 years, if the mosquito pest is eliminated. There is no reason to suppose that the rise in valuation will ultimately stop short of 2½ billion dollars, a sum almost as large as the total ratables for the entire state as listed by the county boards of taxation for 1918.



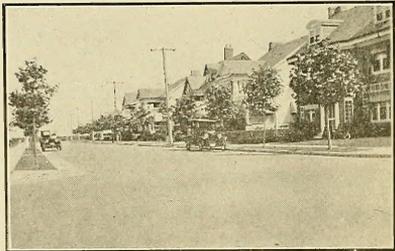
A



C



B



D

FIG. 1. UNDRAINED SALT-MARSH AND ITS EFFECTS ON SEASHORE RESORT INDUSTRY IN COMPARISON WITH THE DRAINED MARSH AND ITS EFFECTS  
A—Undrained marsh; B—Effects; C—Drained marsh; D—Effects

**The Possibilities of Increase in Industrial Ratables Are Fully as Great as the Possibilities of Increase in Seashore Resort Ratables**

The possibilities of increase in taxable values in the suburban and industrial districts of Monmouth, Middlesex, Union,

Essex, Bergen, Hudson, Passaic, Camden and Gloucester counties, are indicated by what has actually taken place, and by the very evident and almost unequalled opportunities for development which exist in the industrial centers of these counties.

**In the Metropolitan District in Northern New Jersey, which is one of the Richest and Most Densely Populated Sections of the Entire United States, lies an Area of More Than 28,000 Acres on Which Great Industrial Development Has Just Made A Beginning**

This metropolitan district may be defined as that section of New Jersey bordering on the lower Hackensack Valley and Newark Bay and immediately adjacent thereto. It includes the cities of Paterson, Passaic, Hackensack, Elizabeth, Newark, Hoboken, Union, Jersey City and Bayonne, as well as a host of smaller cities and towns, and has an aggregate population of nearly two millions of people. In this area there are more than 28,000 acres of salt-marsh land, not more than 5 per cent of which has been developed for industrial purposes. This is true in spite of the fact that it is crossed by the principal railways of the United States and penetrated by large waterways, and stands at the threshold of the greatest seaport which the country possesses.

Without doubt, the fact that this land lies not more than 12 inches above mean high tide and is from time to time covered by the sea, has interfered with its development. But such land can be reclaimed by hydraulic fills, or the tide can be fenced out. Some other agency than the sea floods must be playing a large part in preventing the proper development of these lands which their location would seem to warrant. The salt-marsh mosquito pest seems the most likely factor.

Before anything was done to prevent breeding, countless millions of these insects were produced during the summer season in the stagnant pools found all over these marshes, and the maintenance of large forces of industrial workers on this area was greatly interfered with by the presence of these pests, which during large flights gave them no peace day or night.

**Control of This Salt-Marsh Mosquito Pest Has Already Proved Practicable on Considerable Areas of the Metropolitan Meadows**

In 1905 the New Jersey State Agricultural Experiment Station, with local agencies, began the task of suppressing the salt-marsh mosquito within the metropolitan area. This work

has continued to date. In 1912 local agencies were organized in a broader way and the county mosquito extermination commissions were authorized and appointed. In this year the commissions began work in Essex and Union counties. In 1913 the work was taken up in Hudson, in 1914 in Passaic and in 1915 in Bergen counties. In addition to suppressing the breeding of fresh-water mosquitoes, these county mosquito commissions have taken over the maintenance of drainage works established by the State Experiment Station, have supplemented the drainage of areas already partly completed and have undertaken and carried out the drainage of areas hitherto untouched.

A considerable portion of the salt marshes included in the metropolitan district are peculiarly difficult to handle from a mosquito-control standpoint, because they have been gridironed with railroads and roadways, and large volumes of sewage have been poured out upon them. In fact, there are some areas which, because they are shut-off from the sea and polluted with sewage, have sunk to a level considerably below mean high tide, rendering their drainage by gravity impracticable. Thus, through the activity of man, the ordinary methods used for mosquito drainage on the marshes as nature made them have been rendered impracticable over considerable sections of this area.

Approximately 60 per cent of these 28,000 acres have been treated in such a way as to bring the breeding of the mosquito pest under control. A very large proportion of the work necessary to this end has been done by the local county mosquito commissions.

The managers or superintendents of some 17 manufacturing establishments, on meadows where mosquito control had been undertaken, were recently interviewed in order to obtain their opinions in regard to the value of the work. With one exception all highly commended the work. The exception was a gentleman who said he knew very little about the subject and therefore could not give an estimate of the value of the work, but was in favor of continuing it. Those who had been on the meadows for some years spoke of the myriads of mosquitoes formerly present where now one is seldom seen. What these practical men think of the value and efficiency of the mosquito control methods used on our salt marshes may be judged by extracts from a few typical letters appended to this circular (pages 42-44).

**THE LEEDS COMPANY**

We see by the newspapers there is some opposition on the part of the Board of Freeholders to making the appropriation for the Atlantic County Mosquito Commission. We heartily approve of this work, and hope the Board of Freeholders will see its way clear to make the appropriation necessary for it.

THE LEEDS COMPANY,  
Henry W. Leeds, President.  
(Chalfonte.)

**HOTEL TRAYMORE COMPANY**

During the comparatively short time since its organization, the work of the Atlantic County Extermination Commission has, in our opinion, been productive of wonderful and far-reaching results in promoting the healthfulness of our county and the comfort of residents and visitors to our resort.

The importance of protecting the patrons of our chief industry, caring for the health of pleasure seekers who crowd Absecon Island and the contiguous territory during the greater part of the year, cannot be over-estimated. We wish to go on record as thoroughly endorsing the work of the Atlantic County Mosquito Extermination Commission and to urge your honorable body to make ample appropriation in order that the benefit of the work already done may not be lost.

HOTEL TRAYMORE COMPANY,  
J. W. Mott, Manager.

**BREAKERS HOTEL COMPANY**

Referring to the work which has been done by the Mosquito Exterminating Commission of this State, beg to say that we are heartily in favor of the continuation of same, and hope that this work will go on without interruption until the entire job is completed.

BREAKERS HOTEL COMPANY,  
A. S. Rukeyser, Secretary.

**WALTER J. BUZBY**

The results thus far attained from the efforts of the Atlantic County Mosquito Extermination Commission, working in conjunction with the Board of Conservation and Development of New Jersey, have been highly satisfactory to me. I think that Atlantic City has reaped great benefits from this effort and I hope the Freeholders will continue to lend aid to this important work. The same amount of work continued for five years I consider will practically exterminate the mosquito from these parts.

Very respectfully,  
Walter J. Buzby,  
Hotel Dennis.

**SAMUEL ELLIS, WILTSHIRE.**

I believe the work done by the Mosquito Commission a good thing, and it should be continued, as there is no doubt in my mind it has been a great factor in the elimination of mosquitoes from Atlantic City. I consider it a very valuable asset, which gives Atlantic City a great distinction over all other resorts along the coast.

Yours truly,  
Samuel Ellis.

**LEEDS & LIPPINCOTT**

We were very much surprised to see in one of our local papers some opposition to the steps already taken against the means to obliterate the mosquito.

We wish to put ourselves on record as entirely in sympathy with this movement, and to assure the commission of our hearty support in the continuance of the work. The real cost per capita is so small that we fail to see how anyone would wish to discourage those who are giving their services entirely for the benefit of our community. To our minds, if for no other purpose, it is a very reasonable outlay for the advertising it brings to the New Jersey coast resorts.

Leeds & Lippincott,  
Haddon Hall.

#### F. P. COOK'S SONS

I think it would be a great pity if the Mosquito Commission was compelled to give up its work now when they are getting results.

Very truly yours,  
Harry B. Cook,  
Seaside House.

### MERCHANTS, UTILITY MEN, BROKERS AND LAW- YERS ALSO COMMENDED WORK

#### CURRIE COMPANY

This company endorses the work of the Mosquito Commission, and we trust that same may be continued until the pests are entirely exterminated. The writer, who lives in Chelsea, notices a decided improvement last year.

Yours truly,  
George W. Meredith,  
Secretary & Treasurer.

#### ATLANTIC CITY GAS COMPANY

I believe it would be a very serious mistake not to give the Mosquito Commission its full appropriation, so it may continue the good work that it has been doing. It would be wiser to increase the appropriation, rather than cut it down.

Yours very truly,  
Carlton Geist,  
General Manager.

#### ERNEST BEYER

I wish to add my hearty approval to the good work being done by the Atlantic County Mosquito Commission, and I trust that the program laid out will be continued until we will entirely be rid of the "pesky 'skeeter."

Being a resident of Pleasantville during the summer months, I have noticed a great improvement in the last few years, all due, no doubt, to the good work of the commission.

Very truly yours,  
Ernest Beyer.

#### C. J. ADAMS COMPANY

I have been in Atlantic City for a number of years and have lived in the Chelsea section for the past twenty years at a time when the sections west and north of the Chelsea and Ventnor sections were very much infested with mosquitoes. I know that the filling of the land and the draining of the same have been of immense value, and if the work is carried to completion, ditches drained and kept open on the west and north sides of the city, will largely lead to the extermination of the mosquito troubles.

C. J. Adams.

**LEONARD D. ALGAR**

I most heartily endorse the good work of exterminating the mosquito. Don't let anyone whose hide is so tough that the mosquito cannot penetrate it interfere with this wonderful work.

Respectfully yours,  
Leonard D. Algar.

**DUNGAN, FRY & SPENCE**

Replying to your inquiry as to my feelings and sentiments in regard to the mosquito extermination appropriation, would say:

In my opinion, to refuse to make this appropriation for this purpose at this time would be almost criminal, as I don't think that any person will deny but that the Mosquito Extermination Board has done wonderful work and made great strides in this matter in the last couple of years and now to lose the benefit of all this work and the waste of the money, to say the least, is poor business policy.

Newton Spence.

**WALTER T. REED & CO.**

In reference to the mosquito commission of Atlantic County, I beg to say that if the counties in the state of New Jersey would take up the ditching of the meadows and swamps as Atlantic County has done, I believe we would soon exterminate the mosquitoes, and I understand that the other counties are taking the matter up and expect to follow the steps of Atlantic County.

If this is the case, I would say, keep up the good work, as it would certainly benefit our community to have less mosquitoes.

Yours very truly,  
Walter T. Reed.

**THEO. W. SCHIMPF, ESQ.**

I am heartily in favor of continuing the Mosquito Extermination Commission in Atlantic County, particularly now that other counties to the west of us are beginning to co-operate in the extermination of this pest.

Yours very truly,  
Theo. W. Schimpf.

**"COUNT ON OUR HELP," SAYS OCEAN CITY BOARD**

Chamber of Commerce,  
Atlantic City:

Replying to your letter of February 23, will say that we can not recommend too strongly the largest possible appropriation for the extermination of mosquitoes in our county. In fact, we consider that the extermination of this pest would come next in importance to our bathing beach, which is, of course, the reason for our existence and the thing on which we depend solely for the entertainment of our guests.

We shall be glad to co-operate with you in this matter in any way that we possibly can. Thanking you for calling it to our attention, we are,

Yours very truly,  
The Ocean City Board of Trade,  
Otis M. Townsend,  
Secretary.

**STONE HARBOR BOARD STRONG FOR ACTION**

Chamber of Commerce,  
Atlantic City:

Dear Sirs:

At the last meeting of the Stone Harbor Board of Trade your communication regarding the elimination of mosquitoes was read and favorably received.

Motion was made that the secretary write to the Chamber of Commerce that this board will endorse at any time any action that would be taken regarding the banishing of this pest.

Assuring you that this body is unanimous in wishing the state freed of mosquitoes, I am,

Very truly yours,  
William J. Schuck,  
Secretary.

**"FOR WHOLE STATE'S GOOD," SAYS PRESIDENT VIEHMANN**

My dear Mr Leeds:

We believe you are on the right track in energetically moving to get rid of the mosquito. It not only means a great deal to Atlantic City, but also a great deal to the entire state to be rid of this pest. The direct and indirect benefits are so great that the movement should receive the enthusiastic support of the entire citizenship of the state.

With best wishes for the success of the movement, I am,

Yours very truly,  
George A. Viehmann,  
President New Jersey Chamber of Commerce.

**WOODSTOWN CHAMBER FOR THE MOVEMENT**

Chamber of Commerce,  
Atlantic City, N. J.

Dear Sirs:

At our regular meeting, held March 15, 1918, the matter of mosquito elimination was discussed, and, while Woodstown is not troubled with the little pest, "the mosquito," yet there are parts of Salem County which surely have their full quota. We, therefore, endorse your movement, and will be glad to assist you in any way possible.

Yours very truly,  
Woodstown Chamber of Commerce,  
H. C. Hitchner, Secretary.

**JUDGE HILDRETH, CAPE MAY, AN ENTHUSIAST**

Mr. Samuel P. Leeds,  
Atlantic City, N. J.

My dear Mr. Leeds:

Cape May County is enthusiastically engaged in the elimination of the mosquito, the greatest menace to the welfare of the seaside resort. Our Board of Chosen Freeholders is acting in unison with our County Commission and for the past two years has made an appropriation of \$10,000 per annum. We expect at least this, if not more, for the coming year.

It is generally conceded throughout the county that where work has been done there is a very noticeable decrease in the number of pests. This is particularly so in Cape May City and Wildwood. Our commission started work in the lower part of the county and is gradually working northward.

Cape May City and Wildwood, being in the lower part of the county, were the first resorts to feel the good effects and we in Cape May City, particularly, realize that the mosquito has been practically put out of business here and I understand Wildwood feels the same way. We are confident that if the work is kept up Cape May County will eventually be practically free from the greatest annoyner of both our residents and visitors.

As in your county, the principal work here has been the draining of our salt-water marshes. In Cape May City we have had good local results by not only doing some ditching, but also by using oil.

Yours truly,  
James A. Hildreth, Esq.,  
Cape May City.

**CAPE MAY CITY'S BOARD IN FAVOR**

Chamber of Commerce,  
Atlantic City.

The Cape May Board of Trade wishes to join very thoroughly in the slogan—"THE MOSQUITO MUST GO." We have been working on that line for several years, and endorse most heartily the movement to make it a thoroughly state-wide movement and will render just as much assistance as possible in the accomplishing of this purpose.

Yours very truly,  
Luther C. Ogden,  
President.

**OCEAN COUNTY BOARD SUPPORTS THE CAMPAIGN**

Chamber of Commerce,  
Atlantic City, N. J.

I am very pleased to have the Atlantic City Chamber of Commerce take up this mosquito work with the idea of co-operating and helping the campaign throughout New Jersey. We cannot get the end accomplished until we get more public opinion in back of us. The counties are doing wonderful work, of course, but the job is too long and the end too far off at the present rate.

R. F. Engle,  
President Ocean County Commission.

**EX-GOVERNOR GIVES HIS APPROVAL IN FIGHT  
AGAINST MOSQUITO****GLAD TO SEE CHAMBER OF COMMERCE PUSHING MOVEMENT,  
HE TELLS PRESIDENT LEEDS**

Ex-Governor Walter E. Edge, United States Senator from New Jersey, has given unqualified approval to the movement launched by the Atlantic City Chamber of Commerce to unite all forces in the state and procure state aid for the elimination of the mosquito pest in New Jersey. Senator Edge has written Samuel P. Leeds, president of the shore Chamber of Commerce, as follows:

I am delighted to see the Chamber of Commerce co-operating in the task of exterminating the mosquito. I am frank to say that I would value very highly that advertising which would proclaim to health and pleasure-seekers throughout the world that the mosquito is no longer a pest in New Jersey.

You are aware, of course, of the great strides which have been made toward this objective by the joint efforts of the state and the various counties to get rid of the mosquito through draining marsh lands and carefully inspecting back yards and other rendezvous for the fresh-water species.

I have always been in hearty accord with the efforts to exterminate the mosquito scientifically, and if the movement secures the hearty co-operation and backing of the various Chambers of Commerce, I am sure that it will be successful that much sooner.

Very truly yours,  
WALTER E. EDGE."

## GROWING STRENGTH OF MOVEMENT TO ABOLISH MOSQUITO HERE SHOWN

### SECRETARY AGEE WRITES

President Chamber of Commerce,  
Atlantic City, N. J.

My dear Sir:

I have your letter respecting an aggressive state-wide campaign in New Jersey to exterminate the mosquito, and our State Board of Agriculture would want me to assure you of its deep interest. The Board meets May 15 and at that time I believe it will want to adopt a strong resolution in line with your suggestion.

Very truly yours,  
Alva Agee.

### EXPERIMENT STATION'S HEAD STRONG FOR ACTION

Samuel P. Leeds, President,  
Chamber of Commerce.

My dear Sir:

I have your letter of the 26th instant and wish to assure you that you will have the unqualified support of our institution in carrying out the undertaking in behalf of more active mosquito-extermination work in New Jersey. I shall be pleased to suggest to the members of the Board of Managers of our Station at their next meeting that a proper resolution be prepared and sent to you.

Sincerely yours,  
JACOB G. LIPMAN,  
Dean and Director,

### EX-PROSECUTOR MOORE

Mr. Samuel P. Leeds, President,  
Chamber of Commerce.

Dear Sir:

I overlooked sending you a letter approving the continuation of the Mosquito Extermination appropriation by the County Board of Freeholders. I am heartily in favor of the continuation of it.

Very truly yours,  
C. S. MOORE.

### PUBLICITY BUREAU APPROVES MOVEMENT IN THIS RESOLUTION

WHEREAS, The mosquito, an enemy of comfort and a menace to public health in many communities, is declared by experts in whom this body has confidence to be retarding the commercial, industrial and agricultural development, not only of the coast counties of New Jersey, but of other large areas of the state, and

WHEREAS, It has been demonstrated by the experience of Atlantic County that this pest can be controlled and ultimately eradicated through methods of systematic extermination upon lines approved by the New Jersey Mosquito Extermination Association, and

WHEREAS, The Atlantic City Publicity Bureau is convinced that the time has come for citizens of New Jersey to insist, through their state government, that the elimination of the mosquito is not only a county, but also a state-wide proposition,

THEREFORE, BE IT RESOLVED, that the Atlantic City Publicity Bureau proposes to New Jersey the adoption of this slogan: "THE MOSQUITO MUST GO"—and

BE IT FURTHER RESOLVED, That the Atlantic City Publicity Bureau invite all municipal governments, chambers of commerce, trade and civic organizations of progressive citizens in New Jersey to unite their forces with the object that New Jersey shall, without further delay, enter upon an active and aggressive state-wide campaign to make this great commonwealth a mosquitoless state in the shortest possible time; and that they adopt at once a similar resolution and put themselves squarely on record as backing up mosquito extermination, one of the important movements to be accomplished.

By the Atlantic City Publicity Bureau,  
GEORGE S. LENHART,  
Secretary.

### "GO AHEAD," SAYS NORTH CAROLINA

*Commends State-Wide Fight in Jersey to Banish the Mosquito Permanently*

New Bern, N. C., April 30, 1918.

Mr. S. P. Leeds, President,  
Chamber of Commerce,  
Atlantic City, N. J.

I noticed an item in New York Financial America to the effect that your Chamber of Commerce is launching a campaign against the International New Jersey Advertiser—the Jersey mosquito. Will you kindly have sent to me a copy of your "Declaration for Extermination" and any other literature that you have on the subject?

You are taking hold of one of the biggest things ever attempted in your state and at this time it would be impossible to give even a reasonable estimate of the value its success will bring you. If you concentrate effort and energy on the campaign I am sure that you will be surprised at the results obtained. It will mean steady bombardment with publicity—the results and benefits will amply justify liberal expense.

Cordially yours,  
CHAMBER OF COMMERCE,  
New Bern, North Carolina.  
M. SENNER, Secretary.

### NEWSPAPER AID FOR ANTI-MOSQUITO FIGHT

The Gazette-Review says: "Where State Aid is Needed"

Director Alfred Gaskill, of the State Department of Conservation and Development, has hit the nail squarely on the head in his declaration that the elimination of the mosquito is the first step necessary in the move inaugurated by the Atlantic City Chamber of Commerce for the booming of coast resorts. The present development of the shore resort industry, representing an investment of \$200,000,000, represents no more than 10 per cent of its possibilities, in the opinion of Director Gaskill, and those who are at all familiar with the situation know only too well that his estimate, if it is inaccurate, has erred on the side of conservatism.

Elimination of mosquitoes would not only make short resorts more popular, but would result in the reclamation of great areas now lying waste and not worth the taxation assessed upon them. The killing off of the winged pests would prove an important factor, as Director Gaskill says, in the development of intensive agricultural industries of the state. These desirable results and others that would be sure to follow in their train would be as beneficial to the state at large as to the comparatively few counties infested

by mosquitoes, and there is no good reason why the state should remain aloof from the work of extermination which has thus far fallen almost entirely on the counties affected.

### NEWARK TRAFFIC CLUB ADOPTS A RESOLUTION

Chamber of Commerce,  
Atlantic City, N. J.

Dear Sir:

At the monthly meeting, held May 6, our organization, in accordance with your letter of the 26th ultimo, adopted the following resolution:

WHEREAS, Science has demonstrated that the mosquito is a menace to the public health and hinders the proper development of any community industrially, and

WHEREAS, The efficient work of the Essex County Mosquito Commission has demonstrated that this pest can be eliminated through scientific methods, and

WHEREAS, The Traffic Club of Newark is convinced that this problem should be given attention by the State, as it is not a local problem exclusively,

THEREFORE, BE IT RESOLVED, That the Newark Traffic Club agrees with the Atlantic City Chamber of Commerce that an aggressive campaign should be initiated tending to the ultimate extermination of the mosquito from within the borders of our state, and that to this end the slogan of "THE MOSQUITO MUST GO" be adopted by our own and kindred associations.

By the Newark Traffic Club,  
C. H. GULICK, President.  
W. A. RUEHL, Ch. Board of Governors.  
E. E. BURKHARD, Secretary.

### LONG BRANCH CHAMBER ADOPTS THE SLOGAN "MOSQUITO MUST GO"

WHEREAS, The mosquito, an enemy of comfort and a menace to public health in many communities, is declared by experts in whom this body has confidence to be retarding the commercial, industrial and agricultural development, not only of the coast counties of New Jersey, but of other large areas of the state, and

WHEREAS, It has been demonstrated by the experience of Monmouth County that this pest can be controlled and ultimately eradicated through methods of systematic extermination upon lines approved by the New Jersey Mosquito Extermination Association, and

WHEREAS, The Long Branch Chamber of Commerce is convinced that the time has come for citizens of New Jersey to insist through their state government, that the elimination of the mosquito is not only a city or a county, but also a state-wide proposition,

THEREFORE BE IT RESOLVED, That the Long Branch Chamber of Commerce proposes to New Jersey the adoption of this slogan: "THE MOSQUITO MUST GO"—and

Be it further resolved, that the Long Branch Chamber of Commerce put itself on record as backing up mosquito extermination in the state of New Jersey.

Long Branch Chamber of Commerce,  
LOUIS SILVERSTEIN, President.  
H. E. RHODES, Executive Secretary.

from your cottage and the cottage remain free if no favoring winds blow from the breeding place toward it, while cottages in the direction of the favoring winds may be badly infested at a distance of 30 miles from the breeding places.

The problem of suppressing the salt-marsh mosquito is of state-wide interest and the work already so well started should be completed largely with state funds, while the problem of maintaining the drainage systems thus established on the salt

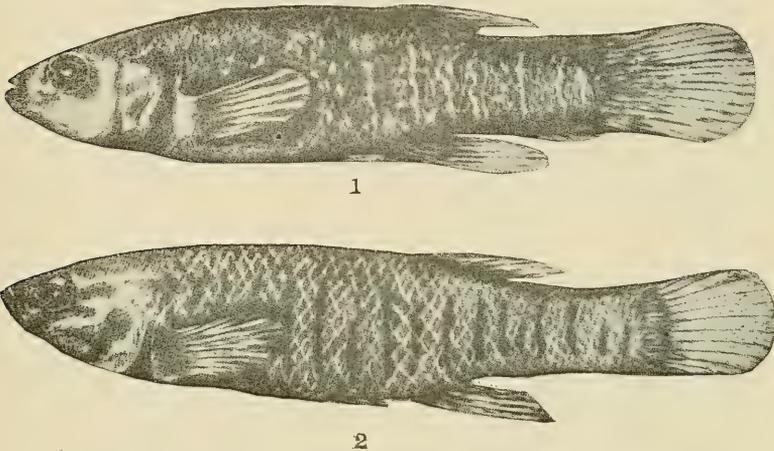


FIG. 4. THE COMMON KILLIFISH—THE GREAT NATURAL ENEMY OF THE SALT-MARSH MOSQUITO  
1—Male; 2—Female. Give them a chance and they will eat the mosquitoes before they can fly and bite

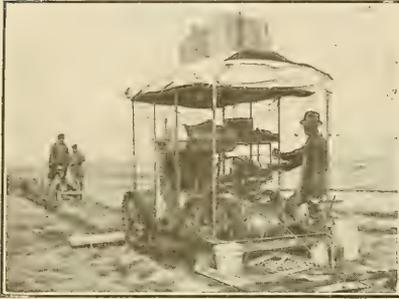
marshes and of suppressing the fresh-water bred mosquitoes can and will be taken care of by local funds.

### The Salt-Marsh Mosquito and Its Natural Enemies

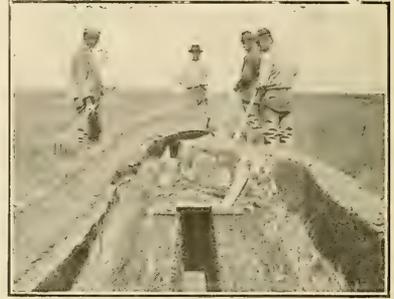
The eggs of the salt-marsh mosquitoes are in the marsh mud, and every time the meadows are covered with the warm water of summer, either by tide or rain, a brood of wrigglers (immature forms of the mosquitoes) hatches and within two weeks the mosquitoes are on the wing.

Two natural agencies limit or entirely eliminate the broods thus started. If the weather is bright the shallow sheet water covering large areas of marsh surface and filling the shallower pools is quickly evaporated and the wrigglers die. The deeper

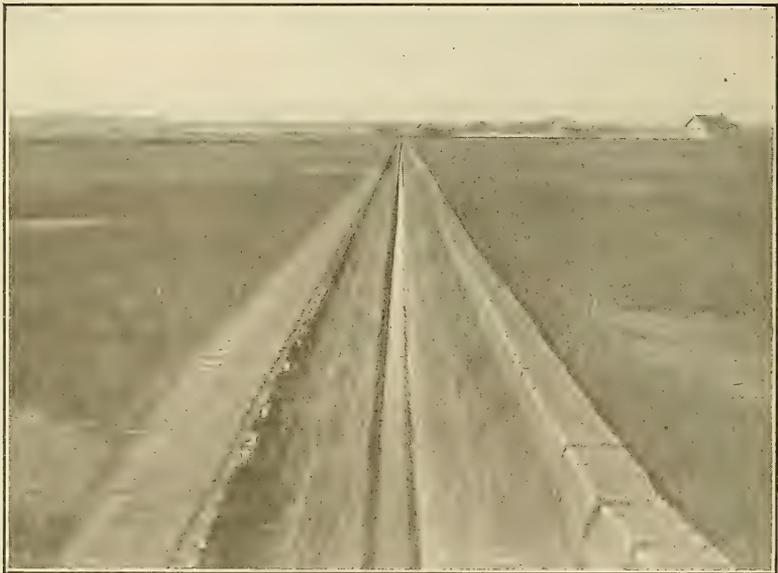
pools harbor small killifish which promptly eat all wigglers that may appear. The result is that comparatively few mosquitoes get on the wing. If, however, the weather is cloudy and the atmospheric moisture high, the sheet water disappears very slowly and an enormous brood of mosquitoes may escape. If the



A



B



C

FIG. 5. DRAINING THE SALT-MARSH: LATEST POWER DITCHER AND ITS WORK ON THE SALT-MARSHES  
A—Power Plant; B—Plow; C—Ditch which they cut

covering tide is very high—so high as to bury the meadows deeply—killifish penetrate everywhere, and whether the weather is bright or cloudy, prevent the emergence of a large brood of mosquitoes by eating up the wigglers.

### Man Has Perfected Efficient Methods for Suppressing the Salt-Marsh Mosquito

Man is unable to modify the weather, but he can so open the salt marsh with ditching that all water upon it will rise and fall with the tide and afford the killifish easy access to all parts of the marsh. Thus, he helps the mosquitoes' greatest natural enemy—the killifish—to reach and destroy them.

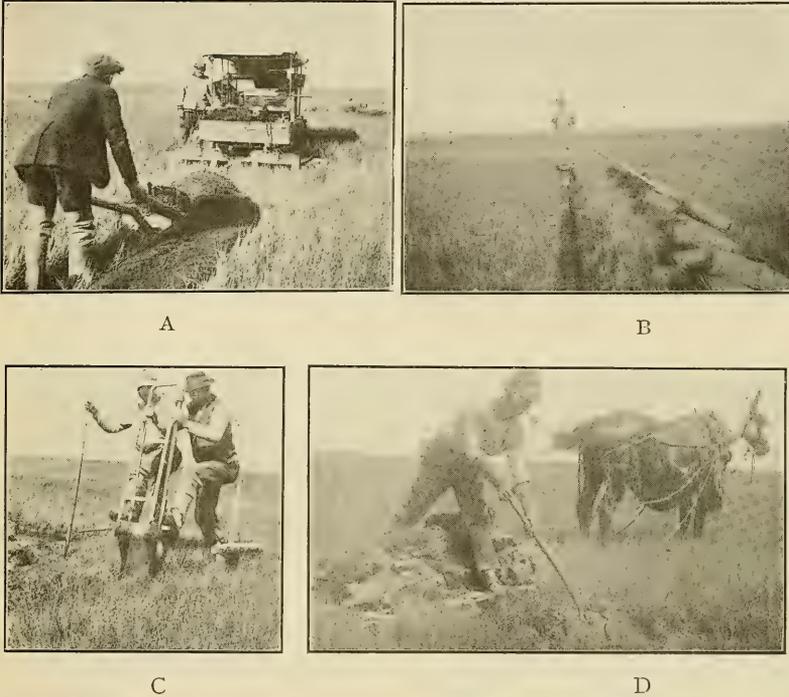


FIG. 6. DRAINING THE SALT-MARSH

- A—Half depth plow for shallow ditching
- B—One-man ditching spade used in spurring
- C—Full depth—two-man spade
- D—Filling holes instead of draining them

Furthermore, in view of the fact that the salt-marsh surface is normally about one foot above mean high tide, it is clear that this trenching will ordinarily remove all sheet water from the surface and empty all shallow pools, thus destroying the great percentage of mosquito wrigglers by drying them up.

In a few limited localities, already referred to, it has been found more practicable to fence the tide out than to cut the large outlets necessary to get rid of the tide water. But even in such cases, unless the drainage systems are pumped dry, it has



A

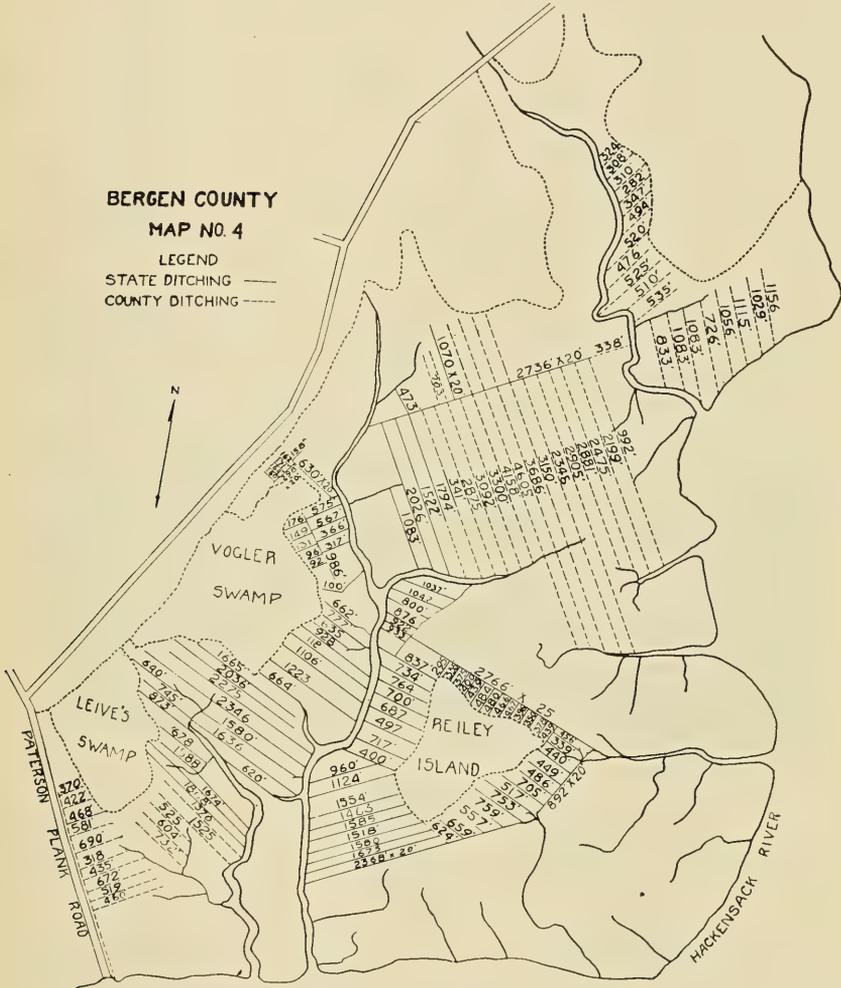


B

FIG. 7. A. DRAINAGE REMOVES THE SHEET WATER AND DRIES OUT THE SHALLOW POOLS, KILLING THE MOSQUITO WRIGGLERS  
B. ONE SQUARE INCH OF THE ABOVE POOL BOTTOM MAGNIFIED AND PHOTOGRAPHED SHOWING THE DEAD MOSQUITO WRIGGLERS

been found necessary to find a way to introduce and distribute killifish throughout the ditches.

The unit of the drainage system for salt-marsh mosquito suppression which 15 years' experience has shown to be best, is a



able. The deeper salt holes are drained by spurs from the nearest unit ditch. The shallow and small salt holes are filled with sod taken from the ditching. The distance between drainage ditches varies from 75 to 400 feet, depending upon the porosity of the particular salt marsh. Most marshes require the drains 150 feet apart.

The trenches described in the preceding paragraph can be and often are, dug with ordinary garden spades. It is usually more economical, however, to use special tools which have been perfected for this type of work during the last 12 years. There are at the present time in use on the salt marshes of New York and New Jersey, one type of one-man spade, two types of two-man spades, a three-man spade and a power ditcher. The power ditcher under some conditions is the most efficient of these tools.



FIG. 9. HAY YIELD OF A SALT-MARSH WHICH HAS BEEN DRAINED FOR SEVERAL YEARS

With this machine an average of 5000 lineal feet of 10 by 30-inch ditching can be cut in a day of 10 hours.

### **Salt-marsh Mosquito Trenching Increases The Yield of Salt Hay**

Some salt-marsh owners think that the mosquito drainage as laid out above will damage the present productivity of the salt-marsh. This is most decidedly a mistake. The income from the salt-marsh is at present derived from salt-marsh hay. A very large proportion of the marsh is now covered with coarse grass utterly unfit for hay and many areas are too soft to permit harvesting even if the hay they bear made harvesting worth while.

A study of salt-marsh vegetation shows:

1. That on areas on which by reason of lack of drainage water stands on the surface for considerable periods,



FIG. 10. PROGRESS OF SALT-MARSH DRAINAGE AND ITS EFFECT ON THE MOSQUITO PEST

nearly all vegetation is destroyed and only pickle weed can grow.

2. That on areas on which the water stands for only a short time but which have a water-logged soil, only coarse grasses grow.

3. That on areas where the soil is a little less wet, the salt grass grows.
4. That on areas where the soil is still better drained, black grass grows.
5. That on areas where the drainage is almost equal to upland, the upland vegetation grows.

Pickle weed is worthless and sedges (coarse salt grasses) are almost so. Salt grass and black grass make good hay. Mosquito drainage tends to cause pickle weed and sedge to disappear and salt grass and black grass to take their places, thus greatly increasing the productivity of the salt-marsh. With proper management mosquito drainage hardens the marsh and permits harvesting operations, where before such procedure would have been impossible.

Studies of the effect of mosquito drainage on the salt-marsh based upon comparison of more than 170,000 acres of undrained marsh with more than 17,000 acres of marsh which have been drained three years or more, show that the yield in salt hay is increased on an average from 0.7 to 2.6 tons per acre, or an increase of more than 350 per cent.

#### **The Drainage of the Salt-Marshes Can Under Present Conditions Be Completed For \$900,000**

An average of about 300 linear feet of unit ditching and spurring is required for one acre. The cost of cutting varies from 1 to 3 cents per foot, depending upon the price of labor and the type of machinery used. With funds available for continuous drainage over large areas, the salt-marsh can be satisfactorily drained for about \$6.00 an acre.

The total area of salt marsh is about 296,000 acres. Basing the calculations on the estimated degree of completion of salt-marsh drainage in each county, drainage enough to cover about 13,374 acres, not to mention dikes, tide-gates and pumps, is needed in Hudson, Bergen, Union, Middlesex and Monmouth counties. To this must be added 12,000 acres in Ocean, nearly 10,000 in Burlington, about 20,000 in Atlantic, about 45,000 in Cape May, 52,661 in Cumberland, and 31,780 in Salem, making a total of 184,815 acres. More than 30,000 acres (C. C. Vermeule gives 34,300 acres for the state) of this total have been at some time diked and drained for agricultural purposes. A large part of this improved land has been reclaimed by the sea and will have to be treated.

About 20 per cent of the marsh is swept by the tide with sufficient frequency as not to require mosquito drainage. Subtracting the 20 per cent which will not require drainage, there yet remains about 150,000 acres to be drained. At the estimated acre cost of \$6.00, about \$900,000 should complete the initial work of drainage.

### **Salt-marsh Trenching Can Be Maintained For About 35 Cents Per Acre**

While the initial drainage is going on, and after it has been completed, the problem of maintenance must be met. The experience on the marsh already drained for several years is variable. The ditching systems on shut-in meadows with none or only a slight tidal pull are costly, while those on the open meadows with strong tidal outlets are cheap to maintain. When the initial drainage has been completed there will be about 70,000,000 feet of ditching on the salt-marshes of the state. About 20 per cent of this ditching will be served with such a scouring tide that nothing but removal of occasional blockages and shearing of over-growing sides will be necessary. Of the balance, 56,000,000 feet, about one-third, or 18,666,666 feet, will have to be cleaned each year. The average cost should not exceed one-third of a cent per linear foot, or about \$63,000. To this must, however, be added blockage removal, which may be figured at about \$800 per million feet. This adds \$40,800 to the previous sum, making \$103,800, or about 35 cents per acre.

Thirty-five cents an acre for maintenance is an average figure for the salt-marsh as it lies and includes the area of the 20 per cent of marsh which does not require drainage. The average cost of the drained areas, exclusive of the areas not needing drainage would, therefore, be somewhat greater than 35 cents. Furthermore, local conditions of marsh, labor and oversight will make a great difference in the cost. Without doubt there are counties where, owing to the fact that the marsh is open and has a good tidal suck, that labor is low-priced, and that oversight is peculiarly efficient, the cost of maintenance will be much less than 35 cents. Also, without doubt, there are counties where, owing to less favorable conditions, the cost of maintenance will be considerably higher.

Furthermore, the development of power machinery for ditch cleaning is bound to reduce cleaning costs.

The state should materially assist in the establishment of the initial drainage, but the present practice of local maintenance should and doubtless will be continued until the marsh is eliminated as a possible mosquito breeder by agricultural, industrial and urban development.

## **Agencies at Work on the Suppression of the Salt-Marsh Mosquito**

The State Experiment Station, under the authority of Chapter 134, Laws of 1906, has been draining the salt marsh as rapidly as the funds granted by the Legislature would permit, and has in addition furnished under the terms of that act advice and plans for much locally supported work in mosquito suppression of both salt-marsh and fresh-water character.

The County Mosquito Extermination Commissions, under authority of Chapter 104, Laws of 1912, have taken up the work of maintaining the salt-marsh drainage systems already established by the Experiment Station and other agencies within their territories, and have undertaken and carried out much new salt-marsh mosquito drainage. Many of these commissions have also successfully attacked the problem of fresh-water mosquito control.

There exists an essential relationship between these organizations. Under the provisions of Chapter 104, Laws of 1912, the Experiment Station is called upon to furnish plans and advice when requested, and to pass upon the reasonableness of the annual plans and estimates of each of the county commissions.

A little more than five years ago a state-wide anti-mosquito association was formed known as the New Jersey Mosquito Extermination Association. This association starting with less than 200 members has now grown to more than 2,100. Its sole purpose is to forward the anti-mosquito movement to the end that the state may be freed from this pest.

More recently the Department of Conservation and Development has taken up the movement and is now bending its efforts to the same end. This year the Department of Charities and Corrections has also taken this matter up and purposes to furnish at a reasonable figure prison labor for salt-marsh mosquito drainage.

### **New Jersey Can Be Rid of Its Salt-Marsh Mosquitoes in 5 Years**

At the present rate of drainage, a little less than 10,000 acres per year (of which the state does now only 25 per cent) 15 years will be required to complete the initial work.

It is planned that the State of New Jersey shall expend enough money annually (an average of \$180,000) so that the initial drainage of the salt-marsh may be completed in 5 years, and that the maintenance of the drainage systems thus established shall be taken care of by the county units.

## The Plan to Rid New Jersey of its Salt-Marsh Mosquitoes in 5 Years Has Been Endorsed By:

Chambers of commerce and boards of trade, Senator Edge, the State Board of Agriculture, the State Experiment Station, the Department of Conservation and Development, civic associations, the New Jersey Mosquito Extermination Association, medical societies, representative business and professional men, manufacturers and hotel owners.

### A DECLARATION OF EXTERMINATION

Adopted by the Atlantic City Chamber of Commerce and submitted to the municipal bodies, the county boards, the civic bodies and the fraternal organizations of New Jersey for approval to the end that this state may be freed of a pest retarding its growth.

WHEREAS, The mosquito, an enemy of comfort and a menace to public health in many communities, is declared, by experts in whom this body has confidence, to be retarding the commercial, industrial and agricultural development not only of the coast counties of New Jersey but of other large areas of the state, and,

WHEREAS, It has been demonstrated by the experience of Atlantic County that this pest can be controlled and ultimately eradicated through methods of systematic extermination upon lines approved by the New Jersey Mosquito Extermination Association, and

WHEREAS, The Atlantic City Chamber of Commerce is convinced that the time has come for citizens of New Jersey to insist, through its state government, that the elimination of the mosquito is not only a county, but also a state-wide proposition,

THEREFORE, BE IT RESOLVED that the Atlantic City Chamber of Commerce proposes to New Jersey the adoption of this slogan—"THE MOSQUITO MUST GO"—and

THEREFORE BE IT RESOLVED, that the Atlantic City Chamber of Commerce invites all municipal governments, chambers of commerce, trade and civic organizations of progressive citizens in New Jersey, without further delay, to enter upon an active and aggressive state-wide campaign to make this great commonwealth a mosquitoless state in the shortest possible time; and that they adopt at once a similar resolution and put themselves squarely on record as backing up mosquito extermination, one of the important big movements to be accomplished.

By the ATLANTIC CITY CHAMBER OF COMMERCE,  
S. P. Leeds, President

### MEDICAL SOCIETY OF ATLANTIC COUNTY IS COMMITTED TO CAUSE

WHEREAS, The Atlantic County Medical Society is fully convinced of the benefit accruing to this city and county in the extermination of the mosquito pest, both from a health and commercial standpoint, and,

WHEREAS, We understand that five and one-half million feet of ditches have already been dug on the marshes around and adjacent to Atlantic City and that we have observed already a considerable reduction in the prevalence of mosquitoes by reason of this work, therefore, be it

RESOLVED, That this society fully endorses the work, believes in it and would urge upon the Board of Chosen Freeholders of Atlantic County the importance of their financial support until it is pushed to completion, and further be it

RESOLVED, That this society commends the activity and efficiency of the commission in the prosecution of the work of mosquito elimination and feels that any interruption of the work at this stage of its progress would be a great mistake and would result in a total loss of all that has up to now been accomplished by the commission. Be it also

RESOLVED, That a copy of these resolutions be sent to the Board of Chosen Freeholders of Atlantic County.

Passed by Atlantic County Medical Society, December 14, 1917.

### ATLANTIC CITY'S HOTEL OWNERS URGE CONTINUANCE OF WORK

A request from the County Board of Freeholders, shortly before the close of 1917, for assurances that Atlantic City hotel proprietors and business men desired a continuance of the annual appropriation of \$26,000 for mosquito extermination work, coupled with an intimation that the item might not appear in the new budget, evoked a most remarkably unanimous declaration of confidence in the work of the Atlantic County Mosquito Extermination Commission.

Representatives of the big hotel enterprises, public utilities and mercantile interests of the city strongly urged the County Board, through Samuel P. Leeds, president of the Chamber of Commerce, and Dr. William Edgar Darnall, president of the County Mosquito Extermination Commission, not to think seriously of abandoning a great and necessary work. Some of these letters, which show the status of opinion in Atlantic City among hotel men, follow:

#### C. B. DEACON, BRIGHTON

We sincerely trust that this work may be continued. We feel that what they have accomplished in the past has been a practical as well as a *sentimental* benefit to Atlantic City and its environments and we should regret very much to hear of any discontinuance of this work.

HOTEL BRIGHTON,

C. B. Deacon, Manager.

#### JOSIAH WHITE & SONS CO.

Dr. Darnall has requested us to write our views regarding the mosquito extermination matter to your board. We understand the county has to date expended upward of \$100,000 on the project and has the work about half finished. Under these circumstances to stop now would be to sacrifice what we have already spent. We think, therefore, we should keep on with the work until it is finished.

JOSIAH WHITE & SONS CO.,  
Jno. J. White, President.  
(Marlborough-Blenheim.)

**Mosquito Control Has Been A Paying Proposition on the  
Metropolitan Meadows**

For proof of this fact one must look to the taxable values in the areas concerned. Unfortunately it has not been possible to make a complete study of all of them and we are limited mainly to the consideration of what has occurred on the Newark meadows, although some supplementary material has been gleaned from the conditions on the Kearney Township meadows.

In Essex County as a whole, the taxable values from 1896 to 1918 inclusive, have shown a steady increase from \$187,000,000 to nearly \$800,000,000. With the exception of 1906, the differences in percentage of increase from year to year have been small. In 1906 we find a 56 per cent increase, which is probably due to the inclusion of railway properties.

On the Newark meadows, however, we find a very different story. In the period from 1896 to 1905, inclusive, there was either no increase in ratables at all or only a fraction of one per cent. The sharp increase in 1906 is probably due to the same cause as the increase in the county as a whole but from 1906 to the present, in every year we find an increase, and throughout the period we find an average increase of 24 per cent as compared with an average increase of 8 per cent in the county for the same period.

In 1905, just preceding this upward trend, the State Experiment Station began its effort to bring the salt-marsh mosquito under control. Since that time, thanks to local interest which finally culminated in the formation of the Essex County Mosquito Extermination Commission, the work of treating the marshes in such a fashion as to eliminate the breeding of this pest has gone steadily forward. No one can escape the fact that this large upward trend of the taxable values of the Essex County salt marshes has been coincident with the progress of the work against the salt-marsh mosquito. In view of the testimony from factory owners and operators in this district, and in view of this coincidence of mosquito-control work and large increases in taxable values, it is hard to escape the conclusion that mosquito control has played a considerable part in this increase in land values.

It should further be pointed out that the present yearly tax income from the Essex County meadows is almost as large as the total sum of money furnished by the state of New Jersey and expended throughout the state from the year 1902 to the present for salt-marsh mosquito control. It should also be said that the

annual tax income from the Essex County meadows is more than three times as large as the annual sum expended by the Essex County Commission in its effort to give protection from all species of mosquitoes to the half million people living within its borders.

Table 1 gives the total ratables (net valuation taxable) for Essex County for each year, with the annual per cent of increase, from 1896 to 1918, inclusive.

Table 1  
Taxable Values in Essex County

Year	Ratables (Net Valuation Taxable)	Increase over
		Preceding Year Per Cent
1896 .....	\$187,007,043	
1897 .....	192,169,150	2
1898 .....	195,451,005	1
1899 .....	203,938,739	4
1900 .....	210,806,331	3
1901 .....	222,165,236	5
1902 .....	230,197,268	3
1903 .....	237,172,475	3
1904 .....	245,671,200	3
1905 .....	266,539,637	8
1906 .....	415,838,528	56
1907 .....	440,815,139	6
1908 .....	442,789,444	0.4
1909 .....	485,615,926	9
1910 .....	516,235,469	6
1911 .....	552,035,863	6
1912 .....	583,870,154	5
1913 .....	606,478,552	3
1914 .....	621,744,370	2
1915 .....	646,289,876	3
1916 .....	653,741,287	1
1917 .....	686,361,004	4
1918 .....	710,785,536	3

Table 2 gives the total ratables of the Newark Meadows, with the yearly percentage of increase and the tax produced for each year from 1896 to 1919, inclusive.

Figure 2 illustrates more graphically than the tables the remarkable agreement between the rise in meadow valuations and the progress of salt-marsh mosquito-control work.

The striking coincidence between the progress of mosquito-control work on the Essex salt marsh and the increase in meadow ratables may be illustrated in still another way. The increase in valuation for Essex County from 1905 to 1918 is 166 per cent; the increase in the ratables of the Newark meadows for the same period is 1913 per cent, or more than 11 times the per cent of increase of the county.

While the Newark Meadows have been selected for illustration because the permanent mosquito eradication work is more nearly complete there than elsewhere in the metropolitan district, relatively large increases in ratables are found on other meadows where the control work has advanced far enough to be considered a factor in real estate values.

It must not be supposed because the apparent direct influence of the suppression of the salt-marsh mosquito on the

Table 2  
Taxable Values on the Newark Meadows

Year	Ratables (Net Valuation Taxable)	Increase over Preceding Year	Tax Produced
		Per Cent	
1896	\$ 390,335		\$ 7,650
1897	385,335	—1	7,642
1898	323,999	—15	6,804
1899	323,655	—0.1	6,861
1900	323,850	0.06	7,253
1901	323,385	—0.1	6,920
1902	320,562	—0.8	7,116
1903	320,697	0.04	7,440
1904	320,492	—0.06	7,275
1905	322,892	0.7	7,298
1906	460,140	42	8,016
1907	545,565	18	9,241
1908	658,480	20	10,750
1909	726,985	10	13,896
1910	758,670	4	14,653
1911	1,113,465	46	21,948
1912	1,428,525	28	29,153
1913	1,735,610	21	35,071
1914	2,192,685	26	45,651
1915	2,251,355	2	51,367
1916	3,750,885	66	91,910
1917	4,764,965	27	128,668
1918	6,500,890	36	188,539
1919	7,015,110	7	238,513

meadow valuation has been stressed, that the uplands of the urban district derive no benefit from the elimination of this summer pest. Quite the contrary. The mosquitoes of the salt meadows are far-flying insects. Residence sections lying to leeward of a marsh, even though miles away, may suffer severely from invasions of the pest. And people who have a choice do not knowingly invest their money in homes in a mosquito-infested neighborhood. The elimination of the breeding ground from which the insects come would naturally be followed by a rapid increase in ratables in such a neighborhood. Real estate experts are agreed on this point.

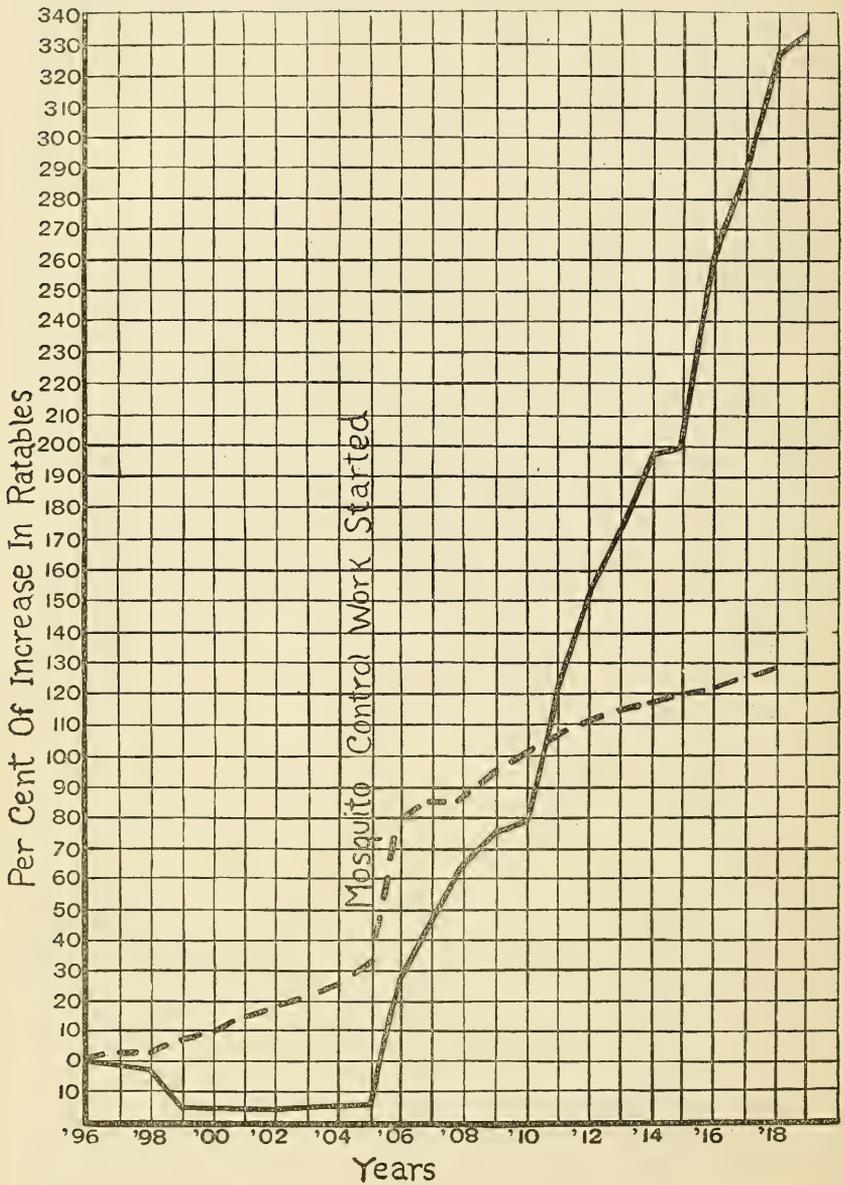


FIG. 2. COINCIDENCE BETWEEN THE PROGRESS OF SALT-MARSH MOSQUITO-CONTROL WORK AND THE RISE IN VALUATIONS OF THE NEWARK MEADOWS  
(See explanation on next page)

**No Other Region in New Jersey and Probably No Other in the United States Has Such a Capacity for Rapid and Enormous Industrial Development as the Metropolitan Meadows**

Important as has been the development, and large as has been the increase in ratables in those sections of the meadows where salt marsh-mosquito breeding has been placed under control, this development and increase is but a small per cent of the possibilities of this area. But 350 acres, or 7 per cent of the total of 4,631 acres comprising the Newark meadows, are being utilized for industrial purposes. Probably not over 5 per cent of the 28,000 acres of meadow lands in the Hackensack Valley and Newark Bay region have been reclaimed for industrial purposes.

Certainly no other part of New Jersey, and it is doubtful if any other like area in the United States, can match the advantages of the 28,000 acres of metropolitan meadowlands for industrial enterprises. This area is in closest proximity to—literally adjoins—the densest and largest center of population in North America. In fact, it is right in the midst of this population. It is crossed by the most important railroads of the country. The Hackensack and Passaic rivers and Newark Bay are important waterways for this area. The chief port of exit and entry of the United States is on the threshold. Indeed, the

FIG. 2. COINCIDENCE BETWEEN THE PROGRESS OF SALT-MARSH MOSQUITO CONTROL WORK AND THE RISE IN VALUATIONS OF THE NEWARK MEADOWS

The broken line is a graph of the increases in the ratables of Essex County from 1896 to 1918. The unbroken curve is a graph of the changes in ratables of the Newark Meadows from 1896 (the first year the meadows were assessed separately) to 1919.

The per cent of increase (above the zero) or decrease (below the zero) in ratables is indicated by the divisions on the heavy vertical line at the left. The divisions on the heavy horizontal base line represent the years from 1896 to 1919.

The sudden jump in both the county and meadow lines between 1905 and 1906 is probably due to a change in the classification of railroad property which was made about that time. It is of no significance in regard to the mosquito work.

The ratables (net valuations taxable) for the county experiences a steady, consistent increase (with the above exception which affected both county and meadow line alike) from 1896 to 1918.

The graph of the meadow ratables drops between 1896 and 1898 and then runs practically parallel to the base line to 1905. From 1905 to 1919 the meadow line rises almost perpendicularly. At 1905 it is  $4\frac{1}{2}$  points below the county line; in 1918 it is  $12\frac{1}{2}$  points above the county line or almost 3 times as far above the zero line as the county graph is.

From 1905 to 1919 the increase in valuations (as shown by the graphs) is relatively enormous for the meadow lands as compared with the county. It is significant that the increases in valuations on the Newark meadows have come since 1905, the year mosquito control work was started on these meadows, and that the rise in ratables has exactly paralleled the progress of the control work.

chief transportation systems of the American continent and the Atlantic Ocean focus on this area. From here radiating lines of communication go out to tap the markets of the world. There is no place where raw materials are so easily assembled, and from which the finished product can be more easily dispatched to the world's marts.

Twenty-eight thousand acres of waste land possessing all these advantages can scarcely be found anywhere. The first step toward hastening the industrial utilization of these meadows is the completion of the mosquito drainage, for industries cannot flourish where workmen are tormented throughout the summer season by hordes of winged pests. Remove the insect nuisance and the capacity for development on this area seems almost unlimited.

**An Increase of \$200,000,000 in Property Values in the Urban and Industrial Centers can be Expected within 20 Years to Follow the Suppression of the Salt-Marsh Mosquito**

Thus we have seen that with not over 5 per cent of the total possible area occupied the taxable values of this salt-meadow land has risen from \$1,000,000 or less to \$16,000,000. Furthermore, the increase in the values of urban districts has yet to be considered. Mr. Walter A. Evans, former director of the Essex County Board of Freeholders, and a man familiar with real estate values said in 1915, "Real estate experts have stated that the benefits to property values, which would result from the extermination of the mosquito in northern New Jersey would amount to at least \$1,000,000,000." Nor does this seem unreasonable, in view of the fact that adjacent to these low lands resides a population of almost two millions.

In view of the fact that the development of 5 per cent of this 28,000 acres has already created taxable values to the amount of about \$16,000,000 and the fact that living adjacent to this area there is a population of almost two million, it seems very conservative to estimate that complete freedom from the salt-marsh mosquito pest would be followed within 20 years by an increase of at least \$200,000,000 of taxable values in the metropolitan district of northeastern New Jersey.

**Mosquito Extermination Has Been Considered a Necessary and Paying Proposition in Neighboring States**

During the past year the State of Pennsylvania, the City of Philadelphia, the Westinghouse Electric Company, and the Emergency Fleet Corporation spent \$260,000 in a joint effort to

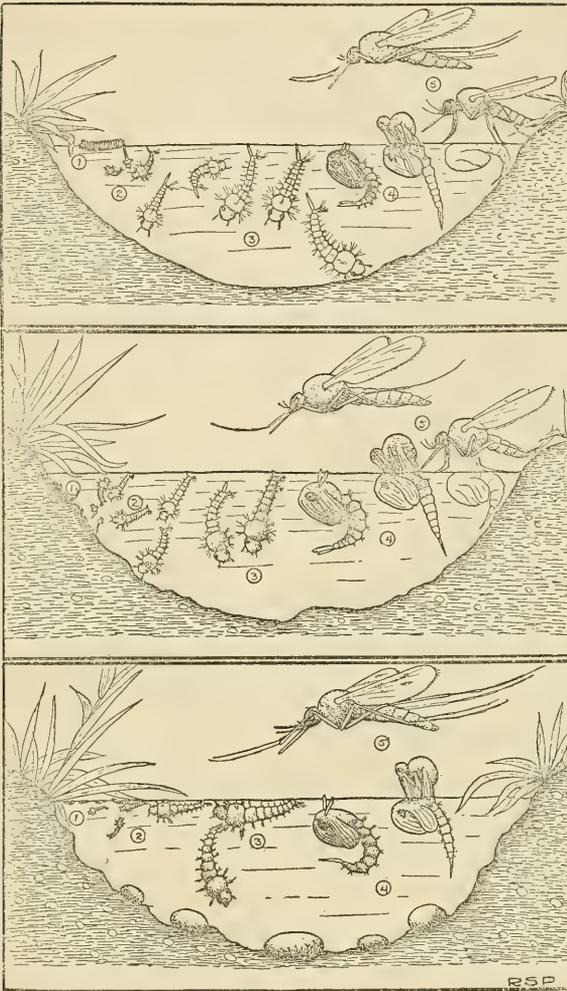


FIG. 3. DIAGRAMATIC LIFE HISTORY OF THREE TYPICAL SPECIES

Top, house mosquito.

Middle, salt-marsh, or woodland pool, or fresh-water swamp mosquito.

Bottom, malarial mosquito.

1, eggs; 2, hatching larvæ; 3, grown larvæ or wrigglers; 4, pupæ; 5, adults emerging from pupæ and flying away. In larvæ and pupæ note breathing tubes at surface of water.

eliminate mosquito breeding in a district composed of South Philadelphia and the northeastern part of Delaware Counties. The work is to be continued and breeding permanently eliminated by drainage operations now in progress.

New York considered it a good investment to expend \$372,606 in eliminating the breeding of mosquitoes on its 25,450 acres of salt marsh. Says Mr. Eugene Winship, Sanitary Engineer, New York City Department of Health: "The work is completed with a few exceptions and New York is satisfied with the results obtained. Without any doubt the money expended (on salt-marsh mosquito extermination) has been a good investment. In my opinion it is the best investment the city has ever made, not only from a health and comfort, but also from a financial point of view."

Compared with these expenditures in New York City and Philadelphia, the sum required to complete the eradication of salt-marsh mosquito breeding in the entire State of New Jersey seems small indeed.

### **Nature of The Problem, Its Solution and The Cost**

All states have mosquitoes, but only the ones having coastal marshes or lying in reach of them have the salt-marsh species. Those that breed on the immense salt marshes emerge at times in such numbers as to form an atmosphere and to give human beings no peace either day or night. Furthermore, those that breed on the salt-marsh fly and are wind-carried for as far as 40 miles over adjacent country. Local efforts to control the mosquito pest anywhere within a radius of 30 miles of a salt marsh may be annulled by invasions of broods of salt-marsh mosquitoes. Before any effort was made to prevent it, these species covered at times during the summer more than one-half the entire area of the state, and afflicted more than three-fourths of the population.

Lest someone should gain a false impression, it should be pointed out that while salt-marsh mosquitoes when aided by favorable winds, do unquestionably migrate, a distance of 40 miles, they do not by any means always do so. Only the larger broods cover such distances and then only when aided by favorable winds. High winds, cold winds, and dry winds do not carry mosquitoes, but rather cause them to cling to grass and bushes. Winds that are warm (about 80° F.), that are moist (70 per cent to 90 per cent relative humidity), and that have low velocity (5 miles or less per hour) are the ones that favor migration.

Salt-marsh mosquitoes may breed abundantly only a mile

**A MERCHANT'S ENDORSEMENT**

President Chamber of Commerce.

Dear Sir: In reference to the continuation of the work of the Mosquito Extermination Committee, I am heartily in favor of the continuation of it. I think it would do this part of the state great harm if it became public through the newspapers that this great work has been discontinued.

Very truly yours,  
CHARLES H. GODFREY.

**HOTEL MAN APPROVES**

Chamber of Commerce,  
Atlantic City, N. J.

Gentlemen:

I think that there is no doubt that the work done by the Atlantic County Mosquito Extermination Commission has greatly reduced the pest which made living conditions so unpleasant when we had a land breeze along the Jersey coast. I hope that, under right direction, the effort along this line will be continued.

Very truly,  
NATHAN L. JONES.

**BOARD OF TRADE OF NEWARK DECLARES READINESS TO HELP**

Chamber of Commerce,  
Atlantic City, N. J.

Dear Sir:

Your letter requesting co-operation in the matter of securing further activity on the part of the State Department of Conservation and Development in the extermination of the mosquito pest will be brought to the attention of our Committee on Legislative Affairs.

This Board was active in securing legislation some years since and it has at all times encouraged the work and has advocated liberal appropriations.

Respectfully yours,  
JAME M. REILLY,  
Secretary.

**CIVIC ASSOCIATION OF SEWAREN JOINS**

Chamber of Commerce,  
Atlantic City, N. J.

Dear Mr. Leeds:

At a recent meeting of the Sewaren Civic Association, it was unanimously voted to back up your resolution on mosquito extermination. You have our hearty co-operation in this much-needed work.

Sincerely yours,  
(MRS. A.) SALOADNA LEER,  
Secretary.

**CARLSTADT BOARD FOR STATE ACTION**

Replying to your letter of April 26, in which you ask our Board to endorse your stand in connection with the state-wide campaign toward the extermination of the mosquito, I am pleased to advise you that I was directed at the meeting of our Board last evening to relay the following resolution to you:

"RESOLVED, That the Carlstadt Board of Trade approves of the adoption by the Atlantic City Chamber of Commerce of the slogan—"The Mosquito Must Go"—and favors the action taken by said Chamber that the elimination of the mosquito is not only a county, but also a state-wide proposition."

Yours very truly,  
Frederick A. Zott, Secretary.

**EAST ORANGE WELFARE CLUB SUPPORTS CAUSE**

Gentlemen:

I take pleasure in informing you that at the last meeting of the Fifth Ward Welfare Club of East Orange, a resolution was passed, heartily approving of the efforts now being made to eradicate the mosquito from our state.

Respectfully yours,  
Mrs. A. G. Stellmouf,  
Corresponding Secretary.

**STATE DEPARTMENT OF AGRICULTURE WILL SUPPORT THE FIGHT**

Trenton, June 7, 1918.

Mr. S. P. Leeds,  
Chamber of Commerce,  
Atlantic City.

My dear Mr. Leeds:

The New Jersey State Board of Agriculture at its regular monthly meeting in May adopted the following:

"RESOLVED, That the State Department of Agriculture is in hearty accord with the movement to eliminate the mosquito from the State of New Jersey and offers its support in every practicable way."

Sincerely yours,  
Alva Agee, Secretary,  
Dept. of Agriculture of New Jersey

**MERCHANTVILLE CLUB IN MOSQUITO CAMPAIGN**

Chamber of Commerce,  
Atlantic City, N. J.

We acknowledge receipt of the Atlantic City Bulletin and beg to assure you of the co-operation of the Half Hour Reading Club of Merchantville, N. J., in the anti-mosquito campaign.

Mrs. May A. Ott,  
Corresponding Secretary.

**RESEARCH CLUB IS SUPPORTING CAMPAIGN**

The Woman's Research Club of Atlantic City wishes to endorse your resolutions in regards to the elimination of the mosquito.

With best wishes for success,

Mrs. M. R. Thompson,  
Corresponding Secretary.

**PLEASANTVILLE IS BACKING MOSQUITO EXTERMINATION**

BE IT RESOLVED, That this Chamber of Commerce be placed on record as favorable to the continuance of the mosquito extermination work in this county.

Adopted at a meeting of the Chamber of Commerce of Pleasantville, N. J., March 15, 1918.

T. B. Wootton, Secretary.

**NEWARK'S MAYOR IS READY TO CO-OPERATE**

I wish to acknowledge receipt of a copy of the Atlantic City Chamber of Commerce Bulletin. The elimination of the mosquito would be a great economic factor in the development of waste lands along the New Jersey tidewater front. I would be pleased to further co-operate with you in the effort.

Yours very truly,  
CHARLES P. GILLEN, Mayor.

**ANOTHER WOMEN'S CLUB SUPPORTS THE CAUSE!**

Bayonne, May 22, 1918.  
Relative to your circular communication regarding the elimination of the mosquito, the City Betterment Club at a meeting yesterday, took the matter up, and as a club, voted unanimously to help and assist in whatever way we could to help exterminate the mosquito.

Very truly yours,  
Ella J. Wilson, Secretary.

**BOUND BROOK BOARD OF TRADE APPROVES**

WHEREAS, At a meeting held May 15, 1918, it came to the attention of this Board that the Chamber of Commerce of Atlantic City, N. J., passed certain resolutions concerning mosquito extermination, and

WHEREAS, The sentiment of this Board is in hearty accord with the subject matter of such resolutions, therefore be it

RESOLVED, That this Board commends the action taken by the Atlantic City Chamber of Commerce, and pledges such co-operation in the campaign for state-wide mosquito extermination as it may be able to render.

Board Trade of Bound Brook,  
T. D. Van Syckel, Secretary.

**DEMAREST BOROUGH CLUB JOINS MOSQUITO CAMPAIGN**

Atlantic City Chamber of Commerce:

We as a body and individually endorse your sentiments in reference to this mosquito extermination affair. The authorities at Camp Merritt are looking out for us, so you see we shall get all the known protection from the pest.

Yours very truly,  
Borough Club of Demarest, Inc.,  
William Neubert, Secretary.

**ROBERT F. ENGLE, STATE ASSOCIATION HEAD APPLAUDS ACTION**

*Great Satisfaction to See Chamber Unite Forces For Anti-Mosquito Drive*  
Chamber of Commerce,  
Atlantic City, N. J.

It has been a great satisfaction to me, and I know to the rest of the mosquito fighters of the state, to note the effort being made by your Chamber of Commerce to waken the people of the State of New Jersey to the necessity of getting rid of the mosquito. The work of extermination has gone so far that it is no longer a question of method, but a question of converting the people and the necessary funds.

There are about 296,000 acres of salt marsh in New Jersey, and at the present rate of drainage it will take 15 or 16 years to complete the initial work. This is entirely too long to achieve a result that will be so beneficial. The state has absolutely fallen down on the job, as far as its share is concerned, and it is because there isn't enough influential public sentiment behind the movement to force the Legislature to notice the work, except incidentally.

We are particularly pleased with Governor Edge's letter in your last issue from his association, and from a view of business interests in a resort town, the work should appeal to him particularly, but as an Executive of the State of New Jersey, his broader vision should see the advantage the extermination of the mosquito will be to the entire state.

When the people dislike the mosquito bad enough and realize that it can be exterminated, they will not tolerate the nuisance any longer.

New Jersey has been the pioneer state in this work and many other sections of the United States that have mosquitoes are looking to us for an example and a record.

I will be very glad to aid the work in any way I possibly can.

Yours very truly,  
R. F. ENGLE,  
President, N. J. Mosquito Extermination Association

### VENTNOR ENLISTS FOR WAR ON MOSQUITOES

WHEREAS, the mosquito, an enemy of comfort and a menace to public health in many communities, is declared by experts in whom this body has confidence to be retarding the commercial, industrial and agricultural development not only of the coast counties of New Jersey, but of other large areas of the state, and

WHEREAS, It has been demonstrated by the experience of Atlantic County that this pest can be controlled and ultimately eradicated through methods of systematic extermination upon lines approved by the New Jersey Mosquito Extermination Association, and

WHEREAS, The Ventnor City Board of Trade is convinced that the time has come for citizens of New Jersey to insist, through their state government, that the elimination of the mosquito is not only a county, but a state-wide proposition,

THEREFORE, Be It Resolved, that the Ventnor City Board of Trade approves the adoption of the slogan "The Mosquito Must Go" and

BE IT FURTHER RESOLVED, That the Ventnor City Board of Trade invites all municipal governments, chambers of commerce, trade and civic organizations, of progressive citizens in New Jersey to unite their forces with the object that New Jersey shall, without further delay, enter upon an active and aggressive state-wide campaign to make this great commonwealth a mosquitoless state in the shortest possible time; and that they adopt at once a similar resolution and put themselves squarely on record as backing up mosquito extermination, one of the important big movements to be accomplished.

By the Ventnor City Board of Trade at a regular meeting held April 30, 1918.

THOS. G. SHEEN,  
Acting Secretary.

### WILDWOOD BOARD OF TRADE TAKES ACTION

THAT, Whereas the Atlantic City Chamber of Commerce has inaugurated a campaign for the extermination of mosquitoes in the State of New Jersey, and

WHEREAS, it is the purpose of said campaign that the citizens of the whole state insist upon the elimination being aided largely by the state government,

THEREFORE, BE IT RESOLVED, that the Board of Trade of Wildwood go on record as being heartily in accord with the said campaign, and willing to lend its energies in every way possible to the ultimate obtaining of the extermination of the mosquito in the State of New Jersey.

By the Board of Trade of Wildwood, New Jersey.

ROBERT J. KAY, President.

Attest: J. B. WRIGHT, Secretary

### ANOTHER BOOST FOR WAR UPON MOSQUITOES

*Doing Fine Work, Says Garfield Board of Trade, and We'll Help*

Chamber of Commerce:  
Atlantic City, N. J.

Gentlemen:

The work being done by your Chamber of Commerce towards mosquito extermination is wonderful and commendable. I have kept in touch with it through your bulletins and otherwise. Bergen and Passaic counties are taking a deep interest in the movement and the future, towards extermination, looks brighter each year. Keep up the good work and may your efforts win success.

Yours very sincerely,  
MILES C. WHITEHEAD.

**STATE AGRICULTURAL EXPERIMENT STATION MANAGERS  
FOR ACTION**

*Favor Organization to Rid Jersey of Mosquitoes in a Few Years*

Chamber of Commerce:

Atlantic City, N. J.

Referring to your communication of April 26, I beg leave to state that the Board of Managers of the New Jersey State Agricultural Experiment Station at its meeting July 18 passed a resolution, a copy of which is herewith enclosed.

Let me assure you that our institution is ready at all times to second the efforts of the Atlantic City Chamber of Commerce in behalf of the mosquito extermination work in the state.

Sincerely yours,

JACOB LIPMAN,

Dean and Director.

RESOLVED, That the Board of Managers of the New Jersey State Agricultural Experiment Station go on record as heartily approving the organization of mosquito extermination work in New Jersey in such a manner as to make possible the elimination of the mosquito pest within a few years.

**CHAMBER'S WORK IS STRONGLY INDORSED**

*Wyoming Association is Highly Appreciative of Atlantic City Action*

The Wyoming (N. J.) association has adopted the following resolution:

WHEREAS, The Wyoming Association of Wyoming, New Jersey, is highly appreciative of the efforts of the Chamber of Commerce of Atlantic City to promote and accomplish the destruction of an insect whose omnipresence in New Jersey is at once disagreeable and dangerous; and

WHEREAS, It believes that the removal of the insect is an item of state policy and private comfort, as well as convenience to all, it is unanimously

RESOLVED, That the State of New Jersey should be made safe from mosquitoes, and this association will encourage the furtherance of this project and co-operate therein with the proper authorities in all practicable ways open to it.

**WOODSTOWN CHAMBER OF COMMERCE GETS BACK  
OF MOVEMENT**

The Woodstown Chamber of Commerce adopted these resolutions:

WHEREAS, The mosquito, an enemy of comfort and a menace to public health in many communities, is declared by experts in whom this body has confidence to be retarding the commercial and agricultural development of the greater section of New Jersey, and

WHEREAS, It has been demonstrated by experience of Atlantic County that this pest can be controlled and finally eradicated through methods of systematic extermination upon lines approved by the New Jersey Mosquito Extermination Association, and

WHEREAS, The Woodstown Chamber of Commerce is convinced that the time has come for citizens of New Jersey to insist, through their state government, that the elimination of the mosquito is not only a local but a state-wide proposition,

BE IT FURTHER RESOLVED, That the Woodstown Chamber of Commerce proposes to enter in upon an active campaign to make New Jersey a "Mosquitoless State", and

BE IT FURTHER RESOLVED, That the Woodstown Chamber of Commerce put themselves on record to back up any "ways or means" for the extermination of this pest.

By the Woodstown Chamber of Commerce.

A. D. SNELBAKER, President.

Attest: H. C. Hitchner, Secretary.

**RESOLUTION BY CAPE MAY'S BOARD OF TRADE**

WHEREAS, The efforts that have been made in various parts of the state for the extermination of the mosquito have had very beneficial results;

THEREFORE, BE IT RESOLVED, that the Board of Trade of Cape May City, N. J., heartily endorses the movement for increased state appropriations for this work, sufficient to rid the state of these pests.

The above resolution appears on our minutes of special meeting held August 19th, 1918.

E. J. JERRELL, Secretary.

**OTHER LETTERS OF INDORSEMENT**

Wildwood, N. J., Dec. 26, 1918.

Mr. Samuel P. Leeds,  
Atlantic City, N. J.

Dear Sir:

The Wildwood Board of Trade is unanimous in its endorsement of the plan to get the next Legislature to appropriate \$100,000.00 for ditching and draining of the mosquito-breeding sections in the State of New Jersey.

The climate and attractions of our beach resort appeal to persons who seek health and recreation, and as we are within 12 hours, by rail, of thirty millions of prosperous people, many of whom erect homes and occupy them or who patronize our hotels and boarding houses thereby developing and making prosperous what was, not many years ago, barren waste and of little value to the state, and as the mosquito pest is the only obstacle in the way of making the New Jersey Sea Coast, the most attractive home and pleasure grounds in the United States, the Wildwood Board of Trade urgently requests the incoming Legislature to appropriate a sum not less than \$100,000.00 to be used in ditching and draining the mosquito-breeding sections which, if properly done, we believe will practically exterminate this terrible nuisance.

Respectfully yours,  
Wildwood Board of Trade,  
W. Courtright Smith,  
Managing Secretary.

In the neighborhood where this refinery is located, the Union County Mosquito Commission have established drains throughout the meadow lands and have kept them free from stagnant water, thereby thoroughly eliminating the breeding places of mosquitoes, and I can safely say that this neighborhood is practically free from mosquito pest.

I might add that there are now 3600 employees at the Bayway refinery and one-third of them are on duty continuously. They experience no trouble whatever from mosquitoes at night.

Very truly yours,  
Standard Oil Company (N. J.),  
(Signed) R. T. Hewitt,  
General Superintendent,

Bayway Refinery, Linden, N. J.

Our plant is situated on the Passaic River near the Newark Transfer Station of the Central Railroad of New Jersey and operates 24 hours per day.

I feel that there has been very good progress made during 1918 and there should be no slackening of effort until the last Jersey "skeeter" has bid us adieu.

The state should use every possible method in eradicating the trouble and its effort along these lines will be very much appreciated and help to eliminate much sickness as well as increasing the comfort and efficiency of those who labor during the night period

Very truly yours,  
THE FRANKLIN BAKER CO.,  
(Signed) George H. Cloud, Manager.

We desire to take this opportunity for expressing our appreciation for the service rendered by the Mosquito Commission during the past years.

As a result of its labors, we are quite sure there has been a considerable lessening of the ill effects attendant upon persons in this community. As for mosquitoes in the vicinity in which our plant is located, we have noted a decided decrease from what we formerly had.

We earnestly trust that the good work done will be continued, not only in this community but in the surrounding territory, for unless this is done no permanent relief can be had for the inhabitants of this city.

We are in favor of the state supplementing the efforts made by individual communities or counties, by supplying such financial aid, when necessary, as may be needed to carry on the work.

If, as a result of these efforts, it is possible to reduce the ill effects and the breeding of mosquitoes to the minimum, if not completely wipe them out, it certainly will be a permanent benefit to every resident of this city and state and will add to its prestige.

We look forward with interest to future activities along the line indicated, and hope that business men and business concerns as well as all citizens of the state will give their moral, if not their financial, support to this end.

Very truly yours,

Louis Sacks Iron Foundry, Newark, N. J.

It is of course difficult to estimate the benefit in dollars and cents except in a general way, but there can be no question that property in a region comparatively free from mosquitoes has considerably more value than where the inhabitants are subjected to the frightful nuisance of the mosquito during the warm portions of the year.

Since this nuisance has been abated the number of strangers who seek this city as a residence has been greatly increased, and Elizabeth has been growing faster since this happened. It is also true that residents have been disposed to make larger investments in their permanent homes since they have felt that they are insured against this pest. I therefore have no hesitation in stating that in my opinion the value of the Elizabeth real estate has been greatly improved by reason of the anti-mosquito campaign, and I should regard it in the nature of a great calamity if the efforts in this direction were abated in any degree.

Yours very truly,

ERNEST DENMAN MULFORD,

Real Estate Expert,

286 North Broad St, Elizabeth, N. J.

We have been located in Wilson Avenue about fifteen years. When we settled here it was a very undesirable place for our workmen on account of the number of mosquitoes that were, at all times, about the plant.

Of late years, since the drainage and extermination of mosquitoes has been going on, there has been no more trouble here, due to this plague, than there is in the residential sections, in fact, it seems there are more mosquitoes in the uplands and around the high points of Newark than there are in the meadows.

We surely think it would be a mistake for the state and the counties to give up this work which is a big help in bringing manufacturers to settle on the land adjacent to the river, where they have facilities for both water and rail.

We only give our experience in this matter, which of course is identical with hundreds of others who are locating every day on the meadow lands which are very desirable for manufacturing plants on account of the transportation advantages.

Very truly yours,

(Signed) Owen E. Fox, Vice-President,  
RADEL LEATHER MFG. CO., Newark, N. J.

Relative to the proposal that the State Chamber of Commerce of New Jersey support the appeal to be made to the joint Committee of Appropriations of the New Jersey Legislature to restore the sum of \$100,000 to the budget of the Department of Conservation and Development for the purpose of carrying out the drainage of the salt marshes for the State of New Jersey, I strongly support the appropriation.

Ten years ago in this city it was impossible for persons to expose themselves on the front stoop or porch during the summer season not protected by netting and obtain any comfort, by reason of the vast number of mosquitoes with which this city was infested. This condition has greatly improved, and for the last year or two this comfort on a hot summer's evening is obtainable.

From the personal observation and investigation which I have made concerning the work of the Mosquito Extermination Commission in this county, I find that wonderful results have been obtained. It is my opinion that the exterminating of the mosquito pest can be carried to a successful end at a slight cost in comparison to the results to be obtained. The extermination of this pest will add millions of dollars in value to land throughout the State of New Jersey which is now of no value, and a great deal of comfort to its citizens.

I am a taxpayer on a considerable amount of property in this state and gladly support the spending of state and county funds used to eliminate the mosquito pest.

Respectfully yours,

(Signed) H. E. Cooper,

NATIONAL SHEET METAL ROOFING CO.,  
Jersey City, N. J.



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