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## **Wisconsin State Cranberry Growers' Association. Forty-second annual meeting, Wisconsin Rapids, Wisconsin, December 5, 1928. Forty-second summer convention, Wisconsin Rapids, Wisconsin, August 14, 1928...**

Wisconsin State Cranberry Growers Association  
[s.l.]: [s.n.], 1928

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# **WISCONSIN STATE CRANBERRY GROWERS' ASSOCIATION**

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## **FORTY-SECOND ANNUAL MEETING**

**Wisconsin Rapids, Wisconsin**

**December 5, 1928**

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## **FORTY-SECOND SUMMER CONVENTION**

**Wisconsin Rapids, Wisconsin**

**August 14, 1928**



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STATE OF WISCONSIN  
COUNTY OF DANE  
CITY OF MADISON

## LETTER OF TRANSMITTAL

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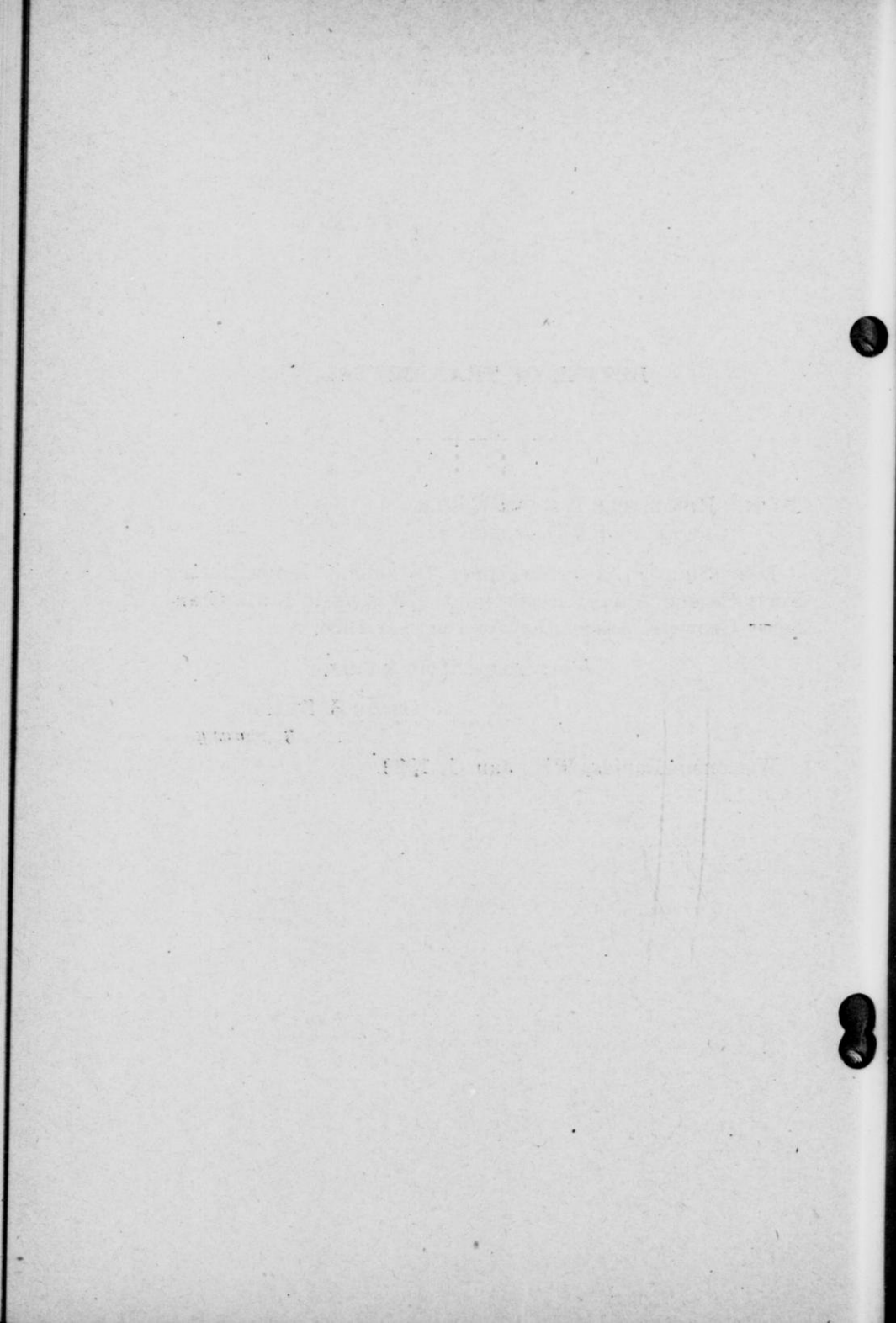
TO THE HONORABLE WALTER KOHLER,  
*Governor of Wisconsin.*

Dear Sir: I have the honor to submit herewith the  
Forty-Second Annual Report of the Wisconsin State Cran-  
berry Growers' Association for the year 1928.

Very respectfully yours,

CLARE S. SMITH,  
*Secretary.*

Wisconsin Rapids, Wis., Jan. 1, 1929.



## MINUTES OF THE FORTY-SECOND SUMMER MEETING

Pavilion Nekoosa, August 14, 1928

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Meeting called to order at 11:00 A. M. by President Hedlar.

Minutes of the January meeting were read and approved.

The financial report was read.

Moved and seconded that the next winter meeting be held the first Wednesday in December.

The Secretary was instructed to write letters of appreciation to the weather forecasters, W. P. Stewart, and C. A. Donnel of Milwaukee; also to Station WLBL, Stevens Point, Mr. Calvert in charge.

A. E. Bennett was appointed to take care of the County Fair Exhibit at Marshfield, September 1 to 5, inclusive.

C. L. Lewis and Guy Nash were appointed at an earlier date to draft resolutions of regret on the passing away of Mrs. S. N. Whittlesey. Resolutions were read at the meeting by Mr. Lewis.

Moved and seconded that a picture of Mrs. Whittlesey be included in our next annual report.

Oscar Potter and C. S. Smith were appointed to draft resolutions on the death of Maude Searles Deshler.

The meeting adjourned for an hour and a half during which time all present did justice to the fine lunch tendered by the Wood County National Bank, also the cigars and candy.

The afternoon program consisted of talks by Dr. Neil E. Stevens, U. S. Department of Agriculture; Mr. E. L. Chambers, State Entomologist; Henry F. Bain, Fieldman; R. A. Peterson, County Agent; Prof. George Peltier, University of Nebraska; Ermon Bennett; Andrew Searles; and Henry Gebhardt.

All members whose dues were paid up to 1928 were given a year's subscription to the State Horticulture paper and were affiliated as members of the State Horticulture Society. There are forty-eight members listed.

Motion carried to adjourn meeting.

—C. S. SMITH, *Secretary*.

## ADDRESS

By *President*, ALBERT HEDLAR

This seems to be, as someone has said, "a Wisconsin year", wherein our crop is reasonably large. Mr. Chaney will talk to you about conditions and crop prospects in the East. You know about our prospects here in Wisconsin, and I feel that we have very favorable prospects ahead of us this year.

I am not going to address you at length, because our program is long to-day and I think will prove very interesting. We have during the year sustained the loss of several of our members. One of these was our highly respected and much beloved member, Mrs. Whittlesey. Personally, I want to speak of Mrs. Whittlesey as one of my friends, just as you people all speak of her as one of your friends. When we first came here as strangers, Mrs. Whittlesey was one of the people who made us feel at home at once. Of course you all welcomed us, but you know what I mean in speaking of her in that way. She had the good of every grower at heart. I remember when I told her that we had joined the Sales Company she wrote me a letter in which she said, "I wept for joy." We also lost another of our members, Mrs. Deshler, a daughter of Mr. and Mrs. Searles, who was long a faithful member of this organization.

We are heartily in sympathy with anything the State and National Departments of Agriculture and all departments allied with them are doing for the people engaged in agriculture of all sorts, and in the lines of business in which we are engaged. We often think of scientists as theorists, but no body of men has so developed the resources of the country as the scientists. In many cases the scientist has made this development possible.

I was on a marsh yesterday with Dr. Neil Stevens, and we looked at a bed of cranberry vines which were almost totally destroyed by false blossom. As you know, I have false blossom on some of my vines, and it has been worrying me considerably. As we looked at these vines, I said to him, "How long is it going to take my vines to get into that condition?" He said, "They will probably never get into that condition." Now I am not quite as worried about that proposition as I used to be. We probably never, as growers without scientific knowledge, would discover how to handle it. We all know that many of these men who are working for the government are working for a compensation which is not to be compared with the compensation made by men who are in the business which these scientists are making possible. I think we owe them a great debt of gratitude. This afternoon we have with us some of these men. Mr. Chambers, the man who has taken the place of Dr. Fracker, the State Entomologist, shows his live interest by meeting with us. I believe that he is watching our interests as carefully as anyone could, and we will hear from him later.

## CROP REPORTS—1928

By MR. A. U. CHANEY

We have no detailed information in regard to crop prospects. The three inspectors for the Sales Company in New Jersey made a thorough trip through the state, and obtained as close an estimate as was possible. Based on their information, a telegram which came this morning placed the New Jersey crop at 125,000 barrels, against 215,000 barrels two years ago, and 75,000 barrels last year. The New Jersey crop is quite spotted, which is hard to explain, unless we use Dr. Franklin's explanation. According to Dr. Franklin's explanation, lack of sunshine last fall and this spring did not store up enough starch in the leaves and vines to sustain the fruit, and a great deal of it blighted. Those bogs which did not have a crop last year seem to show up pretty well this year, possibly due to the starch which they carried over. A bad frost in New Jersey last year wiped out many bogs entirely, and most of those bogs seem to have a fair crop this year. Two bogs which did not have a bloom last year had none again this year, but this is not the general condition. There is no explanation for this. The Early Blacks appear to have the best prospects in both states this season.

The Cape Cod bogs generally had a tremendous bloom; in fact, I believe it was the heaviest bloom that they ever had. The bloom would indicate a 500,000 barrel crop, but Dr. Franklin believes that regardless of the bloom the crop will not be heavy. He recently said he had checked back over a period of twenty years, and where they did not have ample sunshine they had not sustained the bloom. It was very hard for me to expect a short crop when I saw the bloom in July. The plants were very healthy looking, but Dr. Franklin said he would stake his reputation on his theory, and he was right, for the fruit has not set. The early fruit, however, has set better than the late fruit. A wire received from Dr. Franklin states that the fruit is unusually large in size, and because of this fact he places the estimate at 310,000 barrels. Last year Cape Cod produced 360,000 barrels, and the year before, 450,000 barrels. The fruit is evidently going to be large in size, and the best production is expected of the early fruit. A detailed estimate might change the figures somewhat, but this is the latest information we have.

I have tried to get an idea of the production in Wisconsin by questioning the different growers, and it is apparent that the state crop will be about half way between last year's crop and that of 1926, which would be about 50,000 barrels. If New Jersey has 125,000, Cape Cod, 310,000, and Wisconsin, 50,000, we have a total of 485,000 barrels for the three sections, as compared with 450,000 last year, and 700,000 two years ago. The Northwest crop is estimated at 21,000 barrels, against 23,000 last year.

The apple crop, of course, is larger than that of last year. Government estimates place it at 33,000,000 barrels against 26,000,000 or



27,000,000 last year. The bulk of the crop is in the Northwest. There has been a tremendous peach crop. You have probably been frightened by the low price of peaches, which has been due to the abnormal production in New Jersey, Georgia, Carolina, and Tennessee. Tremendous shipments of peaches from Arkansas and Georgia during the last three weeks have resulted in very low priced peaches. The fruit crop in California was also very large.

I feel that the outlook for the sale of canned cranberries is very bright. Five years ago the total production of canned cranberries did not exceed 5,000 barrels. Last year it probably reached the highest peak which it has ever reached, about 40,000 or 50,000 barrels. This large amount was canned in spite of the high price, and was all sold. Every merchant is out of canned sauce at the present time. At least 75,000 barrels, and perhaps even 100,000 barrels, will be canned this year. The canners have all sold very heavily, one that I know of having already sold 225,000 cases at a good price. New canners are going into business. There are four canners operating in New Jersey, the largest factory having canned 10,000 barrels last year. If the industry continues to increase at that rate, it will soon play a very important part in the cranberry business, and will remove from the fresh product the inferior fruit, small fruit, and fruit not likely to carry well, which will be a great help. There has been some discussion of canned sauce coming in competition with fresh sauce, but I think it helps rather than discourages. A great many people will eat the canned sauce who would not trouble to cook it. In that way we get new consumers. I can remember, in my business experience as a broker, when the Hawaiian canned pineapple first came on the market. Today there is imported from Hawaii 10,000,000 cases of canned pineapple every year, and the consumption of fresh pineapple is considerably greater than it was before the Hawaiian canned pineapple was introduced. The sale of the canned pineapple has not hurt the fresh pineapple importation from Cuba, but rather seems to have helped it. In the same way, I believe the sale of the canned fruit will help the consumption of fresh cranberries.

The Sales Company this year will undoubtedly sell direct to the canner. Without the selling expense to increase the cost of the goods to the canner, the canner will be encouraged to contract ahead. The canners' greatest problem is the fact that they have to sell their product long before the fruit is in blossom. All canned fruit is sold in the spring for fall delivery, and prices for fall delivery must be set in the spring. For that reason it is quite hazardous for canners to take large contracts for canned fruit unless they can contract in advance for their supply. The growers should keep this in mind when they sell to canners. If the canning company here becomes a factor and needs a large supply, the growers will be asked to contract berries in advance. If you don't know the market, figure on the law of averages and sell him five or ten per cent of whatever you produce over a five year period. In this way, if you should lose



one year you will gain the next, and you will have an outlet for a definite amount of berries that should go to the canner.

In the East they grade the berries by running them through a half-inch screen. They sell the large berries, and can everything that goes through the screen. This is an economical and advantageous method; and may develop here.

I asked the Sales Company members to be willing to co-operate with any canning company interested in canning cranberries. A great deal of money must be invested in equipment and cans and sugar. The berries compose about one-third of the product that goes into the can. We ought all to feel under a moral obligation to encourage the canner, and from a business standpoint we should be willing to sacrifice, if necessary, to help the industry develop.

The Sales Company, of course, will continue its advertising campaign. This will be curtailed by the short crop. We have already contracted for \$65,000.00 in magazine advertising. A large amount will be spent in radio advertising. The latter has been very effective, and we will probably use thirty-two radio stations this year for a three months' period. This will consist largely of broadcasting recipes. Our whole advertising campaign is based on recipes. We believe it most effective to furnish simple recipes that can easily be used. Some of you may remember in one of our magazine ads we had a picture of a woman canning cranberries, and a picture of the finished product in the form of colored sauce. The pictures were to demonstrate the quickness and ease of preparing the fruit, and the nice appearance of the results, endeavoring to get the housewives who can other fruit to can cranberries, also.

Some very interesting research work is being done on the food values and medical properties of cranberries. A leading laboratory in New York has worked on this for a year. We pay them \$2,000 every year, and extra for any special work that they do. They have proven that all cranberries, even those grown in Wisconsin contain iodine. We can now say in our advertising that all cranberries contain iodine, and organic and mineral salts. They are now trying to determine whether they contain Vitamin C, so valuable in tomatoes. It is believed to be present in cranberries. In most cases it disappears in the cooking, but in the case of tomatoes the acid retains it. Research work is to be carried on to determine whether the acid in cranberries will retain it. We are going to be conservative in our statements, and say that cranberries contain organic and mineral salts, and iodine. We feel that research is well worth the investment of all cranberry growers. We want the food values of the cranberry to be recognized, just like those of the orange are recognized.

The quarter-barrel box is here to stay, and its use is growing very rapidly. We will ship sixty per cent of the Early Blacks in quarter-barrel boxes. Probably three-fourths of these will be sold in the large cities like Chicago and New York, where everything will be in quarter-barrel boxes. The buyers are beginning to order a few quarter-barrel boxes in every order. The demand for quarter-bar-

rels is not so large during the Thanksgiving and holiday period when the demand is great, but at other times of the year we must be prepared to give the trade what they want. If they want 100 or 300 or a carload of quarters, you must be prepared to furnish them. In order to do this, you must carry a surplus of quarter-barrel boxes. The chain stores demand them, and refuse to take the half-barrel if they can get the quarter-barrel. I urge each district to be prepared to have some quarter-barrel boxes so they can fill the orders. We are using no barrels at all. There would be but very few places where we could sell cranberries in barrels. We still call them "half" and "quarter" barrel boxes, because we have a Federal law standardizing the cranberry barrel as a unit of measure. The law provides that every package must be marked with some unit of measure and the largest unit available must be used, therefore we call them half and quarter-barrel boxes, as a unit of measure. Otherwise, we would have to say so many quarts or pounds. If we would say pounds, we would have to weigh each package, and they would vary materially in weight. The Early Black, for instance, will weigh much less than the Late Howe, although there are the same number of berries in the box. The Wisconsin box is a little heavier because of the nature of the wood you use. The berries must be tightly packed, and it is more difficult to get a tightly packed quarter than a tightly packed half, but the law and markings refer to contents of the container. Therefore, to comply with the law the containers must be well filled.

In the East, practically everybody has an automatic shaker to pack the boxes. The boxes rest on a platform. The platform rests on a cam shaft which rotates, giving it a shaking motion. An outfit like this can be homemade. In the East they make them and sell them for \$25.00. Our packing house has just a little platform on hinges which raises and drops. If you fill a box level full, jolt it, and press in the lid, you have a tight box. If they rattle and settle down from the lid when they reach their destination, they look as though you have docked them, and you often get a discount. You can't depend on your man jolting every box. The automatic jolter is the best way to insure a tight box.

CAPT. GUY NASH: Are you going to ship to England this year?

MR. CHANEY: We don't feel inclined to ship to England and probably lose money when prices are so high here. We are prepared to go to England when we get the crop that justifies it. I think the opportunity in England is as bright as ever.

MR. F. R. BARBER: I would like to get some information on the comparative cost of packing in quarter and half-barrel boxes. I have tried to figure it out for three years, and believe it costs us more in quarter-barrel boxes, but there is a saving in other ways.

MR. CHANEY: I think the Eastern growers figure that it costs about 12¢ more for two quarters than for one-half. We aim to charge, where we sell f. o. b., 20¢ more for two quarters than we get for one-half. For instance, if the halves are \$5.00, we would get \$2.60 for each quarter.

The quantity of berries depends upon how solidly they are packed. It is difficult to get a half-barrel box into two quarters unless you

jolt it right. This criticism came from a German retailer whom I dealt with. He finally refused to handle quarter-barrel boxes, and said that we docked him. You are in danger of being penalized by the Pure Food Law if the box doesn't contain a quarter barrel. It is therefore up to you to put in full quarter-barrel contents. In speaking of a quarter-barrel, it does not mean the container, but it means that the contents is a quarter-barrel of cranberries. It is important, therefore, to pack the full measure, although it is difficult.

## PROBLEMS OF 1928

By MR. HENRY F. BAIN

We have some guests with us today who will go into detail on some of the scientific problems of the cranberry grower, so for my part I will merely attempt to outline some of the problems that the season has brought to the cranberry growers. We have a good crop in Wisconsin this year. That being the case, I think it is a very good idea to try to analyze the conditions which operated to bring about the results we have this year.

In the first place, we had a light crop of berries last year. In the second place, in spite of an unfavorably cool June, the temperature and rainfall during the summer have been unusually favorable to cranberry growth. For a time this spring, as we all remember, there seemed to be danger of water shortage, and in fact two or three people suffered considerable loss from frost because of water shortage before the rains came. Since then we have had sufficient, and sometimes more than sufficient to fill up the ponds and carry us through the harvest season all right. As a result of the warm temperatures I am hoping, I think with sufficient grounds, that the berries will reach better size this year, which will help to increase the crop. The season has been very favorable, also for vine growth, especially on young plantings. In fact, I think we have had the best vine growth of any season since I have been here. I believe that we will get a good bud set for next year.

Most of you know the various troubles that Wisconsin growers have experienced this year. To begin with, there was considerable spring killing and possibly winter killing of vines in small areas in many parts of the state. This condition undoubtedly has been responsible for a reduction in the size of the crop on a great many different plantings, and particularly responsible for the general condition this year of one bed having a heavy crop and another less heavy. Another cause of this condition was the occurrence of frost last August. In the Mather district, especially, many different growers find beds which had no crop last year also have no crop this year. Mather at that time was short of water, and when the August frost came the growers protected the beds which were bearing and paid less attention to the areas on which there were no berries. Undoubt-

edly frost damage before the end of the summer prevented a good bud set and consequently a crop this year.

So far as the insect situation is concerned, I think there is less insect damage than there was last season. Two or three people have again experienced an outbreak of the black-headed fireworm. In some cases we feel quite responsible in not having warned growers in time, but sometimes these things happen in spite of our best efforts. On the whole, the black-headed fireworm has done less damage than last year. In this connection I wish to emphasize a fact that I have heard stated again and again by men who have experimented with it; the value of keeping a fireworm flooding, for a sufficient length of time. If a grower had the opportunity to visit all of the bogs in the state, like we state men do, he would be impressed with the fact that where fireworm control has been successful the flooding has been of greater duration than that put on by some of the growers. While this question is discussed a great deal, after seeing the results in the various bogs, there appears to be no question that the long flooding is practically necessary to secure perfect control of the black-headed fireworm.

The fruit worm is still working. It is a little early to say how much damage it will do this year. From present appearances I doubt whether it will do as much damage as last year. The fruit worm, in response to the warm season, is developing and maturing more rapidly than it did last year, and I expect the fruit worm work to be completed in a week or ten days, which is rather early. That means that a great deal of the damage has already been done, and there probably will not be much additional worm work showing up this season.

This year two growers have suffered a certain amount of loss from hail. I merely mention that in passing, as it is one thing we have no remedy for. We can only sympathize with the growers who suffer the loss. In one case the loss was certainly quite heavy.

I will say a few words now concerning the work which your Committee on Co-operation suggested for the cranberry agent to take up for the summer. Several projects were laid out for me, one of which had to do with weather forecasting. Dr. Franklin in his visit last summer made reference, in his address to you, to a method of minimum temperature forecasting which has been developed and is widely used in Massachusetts with very great certainty as to results. Dr. Franklin thinks that a similar system could be developed in Wisconsin. The Committee on Co-operation asked me to get all the information I could from Dr. Franklin on his method in Massachusetts, and any suggestions he might have to make as to how the method could be used in Wisconsin. Dr. Franklin was very generous in his reply. He gave a very complete description, and many valuable suggestions. So far, I am afraid we have to admit, we have no growers consistently trying out that plan. However, we hope that several growers will make these experimental forecasts and keep records in different parts of the state so that in time we may be able



to combine the results and work out some formula for Wisconsin conditions, using a system similar to Dr. Franklin's, for minimum bog forecasts.

Another problem that growers thought was of interest to all cranberry growers was the question of fertilizers for cranberries. Here again we must admit that our results are not as good as we had hoped to get the first season. The whole project was started so late that it was not possible to plan a very complete system of tests. In a few cases growers have applied experimental plots of fertilizers which we will watch with interest, and next year we hope to be ready for the season in time to go more thoroughly into the problem.

The third project suggested had to do with a problem which, judging from the discussions among cranberry growers, is undoubtedly a live question—that of weed control. It was urged that we undertake certain experiments using different poison weed killers. Some work has been done along those lines, and we have found one weed killer which was originally suggested by Dr. Franklin last summer, which certainly gives promise of having a great deal of value. If any of you have time after the meeting, or some time during the summer, you can see some of this experimental work at Mr. Bennett's place, and some on the Biron marsh. We will be glad to answer any questions about that line of work that may be asked.

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## CRANBERRY GROWING HAS ITS PROBLEMS

By E. L. CHAMBERS, *State Entomologist*

Every successful organization finds it necessary to "take stock" at least once a year to learn what progress it has been making. I have attended several tours during the past week of various organizations, including the Potato Growers' Association, the State Horticultural Society and the Wisconsin State Beekeepers' Association, all of which were for the purpose of undertaking just such an inventory. I believe it is a good thing for folks to get together now and then and find out what the other fellow is doing and how he is doing it. If growers find that their crops are better than those of their neighbors they go back home with the feeling that they are at least keeping up with the times. On the other hand, if they see crops better than their own, they at once investigate to find out how they were secured and go home determined to see why they can't do equally as well with the same methods.

Since your association was organized in 1887 I find, by glancing through your annual reports, that you have always had plenty of problems to solve. I noticed in an account of your first meeting that a notation was made to the effect that the attendance was rather small because of the prevalence of forest fires and I remember that

last summer many of you attended the meeting with a decided lack of sleep due to having to be up most of the previous night protecting your bogs from an extremely early frost. Then this summer I visited the bog of one of our growers who had suffered a severe loss from hail. So it is evident that the cranberry growers have many things to contend with besides insect pests and plant diseases.

To some of you I presume it may appear that we are rather slow about finding methods of control for many of these pests but when I explain that you have a highly specialized crop with widely different species of pests to deal with, which must be controlled by entirely different methods than those of our commoner crops, you will understand that it takes time to solve these problems. With the impracticability of utilizing on the cranberry bog equipment and methods of control used successfully in orchards and fields, it becomes necessary to develop special equipment for the purpose. For this reason it is necessary to keep a man on the bogs continually during the growing season studying your problems and attempting to find effective means of solving them. Unfortunately, not only do the cranberry insects and diseases of different localities vary greatly but methods of control give varying results and so what may be a satisfactory control method in Massachusetts may be of no value in Wisconsin.

The University of Wisconsin started an experimental bog near here in 1908 and maintained it for nearly ten years when it was finally abandoned. About 1918 the State Department of Agriculture extended the services of one of its nursery inspectors to the inspection of cranberry bogs with the idea of preventing serious losses from insect and disease outbreaks that might be getting a foothold and this service was continued until 1925, when you were able to again secure sufficient help from the legislature to enable you to have the services of a full-time specialist, Mr. H. F. Bain, and a more or less complete laboratory in which he could carry on his work. This summer we have provided Mr. Bain with a field assistant and we hope to soon have the field service so organized that you need have no concern that some epidemic is brewing that will suddenly appear and threaten to wipe out your crop or require a treatment which may upset the normal development of your bog to the extent of setting the crop back a year or two.

A great many of the enemies you have to contend with are so small that it takes a microscope to detect them and consequently may be observed only by specialists. It is frequently possible, by studying the records made by a series of careful surveys, to forecast insect outbreaks and disease epidemics in time to cope with them before much damage has been done, just as the weather bureau is able to forecast your weather conditions and frosts from the reports they have compiled over a large area. Our office in Madison utilizes the reports received from a corps of some three hundred crop pest reporters scattered about over the state to keep in touch with the crop insect and disease situation and this source of information aids

greatly in forecasting grasshopper, army worm and potato leaf hopper outbreaks from year to year. The Legislature of 1921 authorized county and town boards to expend up to \$300.00 from their funds under the direction of the Commissioner of Agriculture in providing the necessary poison or other means of control for epidemics of this kind.

We find that the cranberry growers are very eager to learn new methods and make progress in pest and disease control, unlike the story I once heard of a county agent's family in which the county agent's wife was not quite as willing to accept the advice of the county agent as were the rest of the people of the county. An agent calling at the house heard an awful commotion in the hen house and turned to one of the younger members of the family playing in the yard and inquired what the commotion was all about. The boy said, "Well, you see, Pa is the county agent, and he is trying to show Ma how to set the hen."

Our forefathers took the presence of rust and blight as a matter of course. They believed that these were due to weather conditions and that nothing could be done about them. That, I fear, may be the sort of attitude some of our cranberry growers are taking toward false blossom. It is much more serious than some of our growers realize. Usually it is the unusual thing which attracts attention while something we have become accustomed to see frequently does not make much of an impression. Recently, for example, there was an outbreak of army worms in Ozaukee County. It was reported by newspaper stories that 300 acres of grain had been destroyed by these pests. Upon investigating this report it was found that there were eight instead of three hundred acres of grain and that in the remaining territory Canadian thistle was the predominating plant, and the grain had been almost entirely smothered out. The army worm had stripped the Canadian thistles as well as the grain. The farmers were frightened because it appeared this army of worms was going to clean everything up in its path. The Canadian thistle had done more damage in these fields than did the army worms but the farmers had become immune to their ravages, having seen the weed so frequently.

In the case of the cranberry bogs, I know if you compare your crops harvested from false blossom infected vines with those secured from bogs free from this virus disease, you will find a striking difference in yield. In planting a bog which may be profitably operated almost indefinitely with proper care, it certainly would be unwise to plant it with vines already heavily infected with false blossom. The stock must be secured from bogs reasonably free from the disease, if not absolutely so, and the amount of infection is kept reduced to a minimum by proper handling. To protect new plantings and limit the propagating stock to reasonably clean vines, the State Department of Agriculture has issued a new regulation which states that:



"In consideration of the infestation of the plant disease known as cranberry false blossom occurring in New Jersey, Massachusetts and other states, and in parts of Wisconsin, with reference to which the Secretary of Agriculture of the United States has not established a federal quarantine, it is ordered that no cranberry plants shall be transported in or imported into the State of Wisconsin without a certificate showing that the premises from which they come have been inspected by an official nursery inspector and found reasonably free from false blossom. Not more than one-tenth of one per cent will be allowed unless a special permit is secured."

In this way the growers will know what they are buying. The stock moving here in the county and in the rest of the state will be taken care of under a system of permits. All cranberry plants are included as nursery stock under the state nursery inspection law and therefore must be inspected and passed before they can be sold or transported. Mr. Bain, in making an inspection of the bogs in the state, makes a record of his findings which are kept on file in his office. The sale and movement of cranberry vines is limited to those which we believe are reasonably safe sources for securing propagating vines. We want the purchaser to know what he is buying and if a trace of false blossom is present he should know it, and wherever possible we try to provide a source of vines free from the disease. In the case of potato mosaic, all of the visibly diseased plants are rogued out as is done in raspberry planting during nursery inspection. Usually two inspections are sufficient. False blossom, while it is a virus disease of the degenerative type similar to mosaic, cannot be handled by roguing. It is therefore evident that until a satisfactory control measure is found, about the only thing that can be done is to select as clean vines as possible and wherever possible those from false blossom-free bogs.

We know that a certain species of leaf hopper is responsible for the spread of this disease. The species in question is not present on the Pacific Coast, where the disease is also present, but does not spread readily since the one or two insects responsible for its transmission from plant to plant are not present there. We also know that the same condition holds with the aster yellows disease, likewise of this mosaic type. This disease came into the country from China. In this country it has become very prevalent due to the fact that it is spread by the aster leaf hopper which is a native of this country, while in China the disease is not very prevalent because of the absence of this particular species of leaf hopper. By isolating plants from this leaf hopper it is possible to prevent the occurrence of aster yellows. This fact was demonstrated during the past two summers by plant pathologists at the University of Wisconsin. A plat of land three hundred feet square planted to asters was enclosed with muslin similar to the covering used in the East for growing tobacco under shade. There was no aster yellows found within the enclosure while in adjoining plots left partially or entirely uncovered the disease was very destructive.

From these facts you can readily see how the scientist must go

about the study of the control of various insects and diseases. It is, as you can see, a long complicated story requiring much investigation and observation with the expenditure of enormous amounts of time and energy. Many of our research workers labor for four or five years before they discover anything of practical value to you. Such problems as yours can only be solved by careful experimental methods and in the meantime what control work is known must be utilized as well as it can. Often a layman believes he has discovered the cure of an evil only to find that he has been mistaken and that some other factor was responsible for the apparent solution of the problem. An insect may appear in destructive numbers one year and then entirely disappear for a period of years. The insect may be attacked by its parasitic insect enemies or diseases and temporarily reduced to the point of becoming very scarce and then, with unfavorable weather conditions or insufficient food left to exist on the parasites themselves, may be reduced to small numbers, and the injurious pest is again able to get a foothold before sufficient parasites have been given an opportunity to develop. So when an insect or a disease suddenly disappears on your bog you cannot always be sure that you have discovered a cure until you have tried it out over a period of several years with equally good results. That is research and it can only be carried on satisfactorily with carefully and extensively recorded notes.

Variation in results may be due to different temperatures as certain corn diseases, for instance, are more prevalent when the temperature is cool, while wheat diseases are usually more prevalent when the temperature is high. Clubroot of cabbage will not show up until the soil temperature reaches at least 62 degrees so that proper drainage in the bog may have much to do with the development of certain of the cranberry diseases.

In closing these brief and informal remarks, allow me to say that we believe Mr. Bain has been receiving excellent co-operation from the cranberry growers and that through the assistance of the committee appointed last winter to work with him on a definite program, he has been able to restrict his work to certain definite problems which has been highly desired for all concerned.

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## THE FALSE BLOSSOM SITUATION IN 1928

By NEIL E. STEVENS, *Bureau of Plant Industry, Washington, D. C.*

Before taking up in detail a report on false blossom conditions in the East, I want to admit that on two points I have been forced to change my mind: first, as to the importance of false blossom; second, as to the advisability of a search for new varieties of cranberries. Five or six years ago I would have said that false blossom

was a relatively minor disease which spread so slowly as to be of little immediate consequence. I believed also that we already had named and well established varieties sufficient for all our needs. I now feel that in Massachusetts and New Jersey false blossom is the most serious cranberry disease problem which we have to meet. I very much fear also that we are facing so serious a reduction in the yield of some of our standard varieties as to make an immediate search for desirable substitutes not only is advisable but urgent.

In speaking of false blossom, I shall discuss only the situation in the eastern states, since Mr. Bain is here and knows much more about Wisconsin and the Pacific States than I do.

### Present Status and Recent Spread of False Blossom

**Plymouth County, Mass.**—The most notable change in the status of false blossom during the past three or four years is its rapid increase in Massachusetts. It is exceedingly difficult to measure or express quantitatively the increase in such a disease. We probably know of fifty times as much false blossom in Plymouth County now (1928) as we did in 1924. Part of this is undoubtedly due to continued search and to the fact that a large number of growers have learned to recognize the disease. There has been, however, a decided actual increase. Competent observers like H. J. Franklin and W. H. Sawyer, Jr., agree with the writer that there is at least ten times as much false blossom in Plymouth County as there was four years ago. This is certainly true of a number of bogs which we have had under careful observation each year, as for example the State bog at East Wareham, and valuable bogs in Plymouth, Marion, and Carver, Mass.

**Barnstable County (Cape Cod Proper).**—In general there is less false blossom on the lower cape than in Plymouth County. This is partly due, I believe, to the fact that there is relatively less acreage of cranberries in this region, the bogs are smaller, and are usually more widely separated. Moreover, there appear to have been fewer introductions of diseased vines. A recent survey of this region made by Mr. L. M. Rogers shows that there are numerous scattered infections together with several more serious and apparently older infections. One particularly interesting case was discovered by Mr. Rogers on a bog in Chatham with a very serious infection of false blossom resulting apparently from the introduction of vines from Berlin, Wisconsin, at least thirty years ago.

**Long Island and outlying bogs in New England.**—In striking contrast to the condition in the central cranberry area of southeastern Massachusetts is the apparent absence of false blossom on the cranberry bogs of Long Island, N. Y., and in the towns of Norton, Holiston, and Carlyle, Mass. The principal bogs in these areas were carefully searched during the season of 1927 and no false blossom was found. It should be remembered that these bogs were planted in whole or in part with vines from the Cape Cod area and that

there are Howes on each of the three Long Island bogs, on at least two of the bogs in Holliston, and on those in Norton and Carlyle. The vines which came from Cape Cod were planted at least twenty, sometimes as much as forty years ago.

New Jersey.—False blossom was first noticed in New Jersey in 1915. At that time it was known only on one bog. For a number of years it attracted very little attention. So recently as January, 1924, Mr. Scammell, one of the keenest observers of cranberry problems, said in speaking before this association:

"False blossom is not a serious trouble with us, but I have found it occurring on numbers of bogs in New Jersey, attacking such varieties as Howes, Early Black, Centennial and Jersey. It appears on our mud bottoms and our savannas, where drainage is good and where drainage is poor."

That summer another New Jersey cranberry grower advised me that it would be hardly worth while to discuss false blossom before the cranberry growers association, since only a few growers were interested. At the present time all the New Jersey growers except those who grow only native varieties are much interested in the problem, for false blossom is present in almost every New Jersey bog in which vines from Massachusetts or Wisconsin have been planted. The situation seems, however, to be less critical in New Jersey than in Massachusetts.

### The Nature of the Disease

While we do not yet know the actual *cause* of the disease we have made some progress in accumulating information about its behavior. For years, as you know, the trouble was attributed to faulty nutrition or to frost injury. Although there had been some earlier suggestions that the disease might be infectious, Doctor Fracker deserves great credit for making the following frank statement in 1920:

"Even though the cause may be a physiological one, plants from infected beds continue to develop false blossoms after being transferred to new locations. The loss usually then becomes greater from year to year and total crop failure sometimes results, followed by the abandonment of the bogs. Under these circumstances the nursery inspection office must adopt the same policy in providing for cases of false blossom as if the disease were proved to be of an infectious nature."

Since that time we have accumulated a large amount of information relative to the spread of the disease, and for several years Dr. Franklin and I have been firmly of the opinion that false blossom was infectious.

During the past three years Miss Irene Dobrosky, of the Boyce-Thompson Institute, has worked in New Jersey and at the home laboratory on the problem of the spread of false blossom by insects. While her evidence is not conclusive, she is inclined to believe that false blossom is carried from plant to plant by a leaf hopper, *Euscelis striatulus* Fall.



Mr. Beckwith and Mr. Hutton of the New Jersey Cranberry Station have also made some very interesting infection experiments, which point to *Euscelis* as the most important carrier of false blossom.

In this connection it should be remembered that a survey of sucking insects on the cranberry bogs of Washington and Oregon failed to show any leaf hoppers of the species above mentioned, while we find them often abundant in the three eastern states, especially on bogs which are severely affected with false blossom.

A series of tests in what may be called "mass infection" was carried out by Dr. Franklin and his associates at the Massachusetts Cranberry Station last year which seem to me to establish beyond any reasonable doubt the fact that cranberry false blossom is transmitted by insects. Between June 26 and July 2, 1927, they set up in a section of Howes, on portions which showed at that time no false blossom, five insect proof cages. In each of these cages they liberated a number of insects freshly swept from a bog badly infested with false blossom. The insects were not all identified but there were no large ones among them and the leaf hopper *E. striatulus* was abundant.

At blossoming time this spring (1928) all five of the areas on which the insects were confined were heavily infected with false blossom. On one plat 157 diseased and 8 healthy uprights were counted. While adjacent areas on which these infective insects had not fed showed no false blossom, or at most one or two diseased uprights, which was to have been expected since the disease is gradually increasing on the bog and these areas were not protected from chance insect visits. This clear cut case, together with the work in New Jersey and elsewhere ought to convince the most skeptical that we are dealing with an insect borne disease.

#### Varietal Susceptibility

The Howes.—Perhaps the most serious feature of the false blossom situation is the evident marked susceptibility of the Howes, the standard late variety of cranberries. The weakness of the Howes in this respect has been emphasized recently by the rapid spread of the disease on Howes in Plymouth County, Massachusetts.

That the Howes will be equally susceptible when exposed to false blossom in Wisconsin seems abundantly proven by its behavior at Cranberry Lake. Five acres of Howes planted in 1924 were found to be seriously infected in August 1926. The bog from which these vines came was not heavily infected when the vines were cut but the disease was present to some extent, and it does not take a very heavy initial infection to start a serious epidemic in young vigorously growing vines. We can now say with confidence and with regret that Howes have proved very susceptible to false blossom under Wisconsin conditions. That this was not demonstrated before is apparently due to the fact that few Howes have been planted in the

state and those chiefly in isolated bogs largely free from false blossom and where insect control is notably complete.

Any grower planning to plant cranberries, especially in a locality where false blossom is already present, should consider carefully whether the keeping quality and selling price of the Howes is sufficient to overbalance the danger from false blossom.

The Searls.—I very much regret also that the Searls, which as you know is in many respects one of the best varieties found in Wisconsin and I believe one of the most delicious varieties ever found anywhere, has also proven very susceptible to false blossom where exposed to other badly diseased vines. You have here in Wisconsin one or two properties which show much loss from false blossom on Searls, and when I set Searls on an infected bog in Massachusetts, hoping it might prove resistant to the disease, the Searls vines were totally destroyed.

### Resistant Varieties

On the other hand, the Early Black, oldest of the Massachusetts varieties and still the most generally grown on Cape Cod, shows a considerable degree of resistance to false blossom, and as you all know the MacFarlin is highly resistant to this disease even on bogs where other varieties are badly infected or killed. The Early Black has been tried in Wisconsin and does not seem to be well adapted to your conditions.

### Control Measures

Insect Control.—Field observations strongly indicate that insect control is the most hopeful line of attack in checking the spread of false blossom. There certainly seems to be a close relation between the control of insects and the spread of the disease. That is, the bogs on which false blossom has made the least progress after its introduction are almost invariably those on which insect control has been notably complete. In this connection it is only fair to admit that in dealing with insect borne diseases on other plants it has frequently proven impossible to clear out the insects so completely as to check the spread of the disease. I feel, however, that with the cranberry, due to the fact that we can flood so large a portion of the bogs, we have a very much better chance to completely control insects than on most crop plants. Dr. Franklin has also had excellent results in the control of leaf hoppers, and many other species of sucking insects by the use of new insecticides which have for their active principle, pyrethrum.

The "Water Cure".—The so-called "water cure" was developed by one of your own members and has been carefully observed and reported to this society by him. Our experience with it in New Jersey leads me to the belief that while it may be of considerable help in this critical situation, it will not of itself enable us to combat the disease. It will certainly not be useful in those areas in Massachusetts where we have inadequate water supply.

### Possible New Varieties

The Middleboro Gazette for November 4, 1927, carried under the head of South Carver news, the following paragraph:

#### "A Cranberry Problem"

"Had we suggested five years ago that cranberry growers were about to be compelled to build over large sections of their bogs, and that they would have difficulty in finding vines suitable for the purpose, we would have been looked upon with derision, but this is the situation that now faces the growers. This condition is brought about by the rapid spread of false blossom that has already made such inroads in the late Howes that many acres of that variety are practically ruined. It looks now as if that variety might have to be discarded altogether, but with what shall they be replaced? The Early Black variety is now raised in quantities sufficient to meet the demand for early fruit, and to increase the output of this variety is inadvisable. Many are regarding Vose's Pride as a desirable substitute from all angles but an obstacle is seen in the limited supply of vines. Thus the situation is a serious one that is bound to tax the resources of the industry, and the man who can find a substitute for the Howes that is immune to the disease and at the same time sufficient in quantity to meet the demand, is the Moses that the cranberry growers are looking for."

This gives the opinion of an experienced observer of cranberry problems and apparently reflects popular opinion in Carver. Perhaps I can do no better than to say "Amen". While I realize that it will be a long and expensive job, I fear we are up against the necessity of hunting for a new resistant variety of cranberry. We will be lucky if we have anything within ten years, but a cranberry property is a long-time proposition and many of you here will be in the cranberry business twenty-five or thirty years from now. I wish we had started this line of work ten years ago. The next best thing is to work as hard as we can right now.

For various reasons Wisconsin offers the most promising place for such a search as we propose to undertake. You have large areas of wild or improved bogs in which there may well be vines which have as great promise as the Howe or the Searls. I can not believe that all the best varieties of wild cranberries have been discovered.

This fall we hope to have at least two experienced men spend the month of September in Wisconsin. With your permission and assistance we will hope to visit some of your marshes in the hope of finding a berry which will be worth trying out experimentally. This line of work will call for your co-operation and will cause you some bother. It is, however, impossible for us to work on cranberry problems without working on cranberry bogs. No doubt those of you who are the best natured will be the most imposed upon. If, however, something of value is discovered you will have the satisfaction of having contributed a bit to the good of the industry.



## WEATHER FORECASTING

By ERMON BENNETT

The Weather Bureau has been of very great help to the cranberry growers in sending out their forecasts and special frost warnings. It is a pleasure to work with the Weather Bureau. It is made up of very fine people who try to do all they can. Mr. Donel was up here this spring. He is one of the forecasters. He makes the forecast one month, and Mr. Cox makes it the next month. They have the cranberry people in mind all the time. Mr. Bain asked me if I would write the Weather Bureau and see if they would get the forecasts broadcast over radio station WLBL at Stevens Point. They agreed to do this, and the forecasts are now being broadcast over that station. I think it would be in order for us, either as a body or individually, to express our appreciation of this service both to the Station, and to the Weather Bureau.

I will now try to explain the way we have used to get our frost warnings, and that several of the other growers have used. Several growers in our district take the thermometer readings at sundown, subtract from that twenty degrees, and figure that as the minimum temperature for that night. I haven't checked that very closely, but it will work fairly well at times, while at times it will fail. It is a fair test, however, and is worth watching. I have used the dew point method for several years. The principle of the dew point and the dew point thermometer is very simple. There are two thermometers hung on one hanger. When you take a dew point temperature, you put one dew point into water. Then you whirl the dew point thermometer, and the rapid evaporation from the bulb will cause the temperature of the dew point to drop. The thermometer shows a temperature of eighty-six now. I will now put it in water and spin it. The rapid evaporation of the water has lowered the temperature of that thermometer to seventy and one-half degrees. I have a table furnished by the government which is very simple. If you subtract the seventy degrees from eighty-six, it would leave sixteen degrees. That would give you a dew point of fourteen. I usually get the dew point at eight o'clock, and it doesn't vary as much at that time as it does in the middle of the day. I used to take it at seven o'clock, but now take it at eight, because I am using the Franklin test. We figure it will drop, on an average, sixteen degrees below that dew point. When the barometer is high, subtract twenty degrees. When Mr. Malde used the test, it went as low as twenty-seven degrees below the dew point. The lowest that I have ever had it drop was twenty-two. This was on a clear, still night, with a high barometer. You can figure quite closely from the dew point. The average is about sixteen degrees. The higher your barometer, the more you allow on your dew point.

For instance, if we had a temperature point of fifty, and it dropped ten degrees, that would leave us a dew point of forty. If we had a high barometer and a clear night, I would subtract twenty, which would leave twenty degrees as our lowest temperature, or sixteen if the barometer was low.

Dr. Franklin has a test that he makes at noon. I haven't tried that out. You take your test at noon, and divide by 3.4 to get the minimum temperature that it will reach. I believe he takes this test at two o'clock.

I have brought some of our records to show how the test works out. I am sorry to say that our barometer has lost some of its mercury, and is off about ten degrees, according to the Government barometer. On June 9 we had a maximum temperature of 58. I took the dew point temperature, which was forty-five at that time. It only dropped one-half degree. I took the reading out on the bog. It gave me a dew point temperature of forty-four. It was clear, with the wind in the north, and our barometer read  $28.5\frac{1}{2}$ , which on the Government barometer would have been 29.7. Then I subtracted sixteen degrees—the barometer was low that night—which left my estimate at eight o'clock at 28. It dropped to 27 that night on some of the marshes. Our marsh varied two degrees, 29 and 27. There is quite a variation on thermometers in different places. I used Dr. Franklin's test on the same night. His test put it at twenty-seven, which was exactly what it hit. I have been quite successful with Dr. Franklin's test, although I have varied considerably with him at times. I haven't worked it out as well as I should have. There has only been a variation of five degrees between my test and that of Dr. Franklin's this summer, however.

My next records are taken from a record started by my father. I have the record of June 2, 1902. Whenever he was out flooding, he would look at the thermometers and write down the temperatures that he found. The thermometer on the stoop, which was sheltered from the north, the west, and the south, always ran higher than the marsh thermometers. At eight o'clock he found that thermometer showing 52 degrees, the one on marsh, 44, the barometer 285, wind in the northwest, and it was clear. The barometer was the same as on June 9 of this year, which was 297 on the Government barometer. That same night at 9:30 he went out again, and it was 50 on the stoop, 45 on the marsh, a cloud passed over; there was a slight rain, but it cleared. At 11:00 it was 46 on the stoop, 38 on the marsh, and dew on the thermometer. There was a slight northwest wind. The barometer remained the same. The thermometer readings were 42 and 32. The lowest point that night was 29. There was no damage. Dad has kept a record for twenty-six years. During that period he never found a night when there was dew on the thermometer at 9:00 o'clock or after that it dropped over thirteen degrees. It works on the principle of the dew point.

I would like to see some of the growers use the dew point so that

I will have someone to check up with on Dr. Franklin's formula. I believe Dr. Franklin's formula can be worked out to be of great benefit to the cranberry growers.

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## ADDRESS

By MR. GEORGE PELTIER

I got my experience in cranberry growing on Gaynor's marsh. The first two years I tried to cut the weeds off the banks. The second year I helped Mr. Malde with the spraying program. Right now my problem happens to be on alfalfa, which is a long way from cranberry growing.

I am very glad to get back and renew old acquaintances.

You might be interested in knowing that I wrote my senior thesis in the University of Wisconsin on false blossom of cranberries, in 1910.

I want to thank you for the privilege of speaking to you again.

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## WISCONSIN'S SOUTHERN BOOSTER TOUR

By R. A. PETERSON, *County Agricultural Agent*

I want to thank both the Cranberry Growers' Association and the Sales Company for the part that they took in helping to make possible the sending of a representative on the Wisconsin Southern Booster Tour. Inasmuch as I was that representative, I feel personally indebted to you all. It was one of the hardest trips I have ever taken. The Booster Train, as you know, was a Wisconsin proposition. It had, possibly a little political angle about it, but the whole proposition was very much worthwhile, and sentiment enough developed in favor of it so that it will be an annual event. A new route will possibly be chosen each time, and a great deal of the territory throughout the United States will become familiar with Wisconsin and its products. About 165 people representing all forms of vocations and callings from all sections of Wisconsin made the trip. I feel that it was worthwhile merely from the standpoint of getting together and meeting the people from your own state and from other states. I am sure that every one of those 165 representatives is a bigger booster for Wisconsin than he ever was before. That alone is worth the cost of the entire trip.

We left Madison on February 7th, and toured through twelve states—Iowa, Kansas, Missouri, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Tennessee, Kentucky, Illinois, and back to Wisconsin.

The tour covered about 4,000 miles. We made about thirty stops, and an average of about 1,000 people visited the train and viewed the exhibits at each stop. The exhibits featured mostly dairy products and general agricultural products. There were five exhibit cars, and two or three of these were made up of county exhibits similar to the one that we had. There was a car made up of exhibits by the Department of Agriculture. The Horticultural Department had a very nice exhibit, and co-operated very nicely with the cranberry growers. The University of Wisconsin and Department of Education put on a very interesting exhibit, also. It would take too much time to go into detail in describing the exhibits on the train, but they showed to very good advantage the agricultural products of Wisconsin. The recreational possibilities of the state were featured, too. We, here in Wisconsin, are so close to the program that we sometimes do not realize what a wonderful state we live in. The more we travel through other states, the more we can come back to Wisconsin and feel that we are living in one of the best states of the Union.

I will try to give you just a little picture of the South. An article in one of the magazines entitled "The South Wakes Up" covers the proposition pretty well. The South is changing from the traditional land of cotton to a land of industry and enterprise. Industry and brains are moving into the South, and changing it so that it is "up and going". My ideas of the South were changed a good deal. We found none of the sleepiness that so many Northerners feel is common to the South. The Southern cities seem to have the same spirit common to cities in the North. There are a lot of wonderful opportunities there, also. Birmingham, Alabama, for instance, is the center of the pig iron industry. The price set on pig iron at Birmingham is the price that rules the world. They have available iron ore, limestone used in the smelting process, fuel, and cheap labor, a combination that makes for the lowest cost of production. This condition is common throughout the South, and makes the industries very profitable. We saw mammoth cement mills throughout the South, whose success is also made possible by low cost of production. The South is rich in minerals and in timber. At Galveston I saw the biggest pile of sulphur that I have seen since I have taken it in sulphur and molasses. At Galveston they send out more sulphur than any other seaport in the world. Many rich deposits of mineral salts, sulphur, and things of that kind are found, which may be easily mined. When they find a sulphur deposit, they bore a hole and drop two pipes down to the sulphur. They shoot hot steam down through one of the pipes, melting the sulphur and forcing it out through the other pipe. The oil sections are very interesting. There is a great deal of wealth in the oil districts. I imagine that if we had all the money lost in oil and that made in oil we would have two very large piles. The most stockholders would probably be in the pile of money lost in oil.

Every city has something to make it famous. Davenport, Iowa,



is noted for two things: It has the largest macaroni factory in the world, and has the Palmer School of Chiropractic. At St. Louis the thing that interested us most was the Lincoln Memorial. Guthrie, one of the cities which grew up so rapidly in the early days of Oklahoma, has one of the largest masonic temples in the world. There are six airplane factories in Wichita. It is considered the "air capital of the world", and is growing very rapidly. The reason for Wichita's being the air capital is because it is centrally located so far as the United States is concerned, and any field in Kansas is an emergency landing field.

Oklahoma City is the center of the oil district. There is a lot of wealth, due to the oil wells around that territory. It costs \$40,000.00 to sink a test well. When Oklahoma became settled, there were a lot of Indians that they didn't know just what to do with, so they gave the Indians that land. It later developed that this was the richest oil land available. These Indians are now very wealthy. Each man, woman, and child receives an average of \$20,000 annually as a royalty on this land. They are free spenders. One of the Ford dealers said that the Indians were the best purchasers of Lincoln cars that he had.

It isn't necessary for me to tell you about all the cities of the South, except that they are moving very rapidly. At San Antonio they were just finishing a twenty-five story office building, and had the foundation laid for a thirty-one story office building. The Government has two large flying fields there. One, called Kelley Field, is a primary school in aviation. They start there, and after eight months go to another school for four months. The first is the finishing school in a good many cases, but they may go to the other school for further instruction if they care to. There are a couple hundred airplanes in the air most of the time when the students are in training.

We would usually enter a city very early in the morning. The train would be opened to visitors. A reception committee would show us the best that they had. If the city had a governor, they would have him present. We had a banquet for breakfast, one for dinner, and one for supper. We tried to get a little sleep while on the train, but this was difficult. The regular schedule was carried through, even on Sunday. The people who visited the train were thoroughly interested. Some came 125 to 150 miles to see the exhibits. A large part of our exhibit was made up of cranberries. Mr. Bennett was very active and helpful in making the exhibit possible. It would have been difficult to make the exhibit possible without the able assistance of the Cranberry Growers. The people were thoroughly interested. Many of them had never seen cranberries before, other than those they had bought in the stores. We had some very nice whole cranberries, and also canned cranberries, with us. Many people said they had never seen cranberries as large as those we had in our exhibit. Many said they were interested in The Eatmor brand. (I don't believe that those were the people who said they hadn't seen large cranberries, however.)

We distributed about 6,000 of your pamphlets, and that is probably the best contact we made. Mr. Chaney mentioned in his address that the best method of reaching the consumer was by furnishing him with the right kind of recipes. This booklet, getting into the homes of many people throughout the South and familiarizing them with the recipes, may help to increase the consumption of cranberries. We didn't try to make any direct sales; that wasn't our job, and I'm not sure that it would have been possible. We learned some things about making an exhibit that we will try to keep in mind. The Door County Cherry Growers had a very nice exhibit, made up entirely of cherries. The exhibit had been planned long before the tour. They had a lot of little posters which they distributed on the train and placed at each plate at the banquet tables. I had some cranberries that were canned in glass jars so that the fine appearance of the canned fruit would be noticed. The canned cherries that were exhibited had highly colored labels on the cans. This made a very attractive exhibit.

Another Booster Tour is being planned for this winter, and I believe it would be well for the Cranberry Growers to consider putting some sort of an exhibit on that train. I am not sure whether the county will again put on an exhibit or not. I think it would be well to have one of the Cranberry Growers accompany the train. If that is not possible, I am sure that the Horticultural Society will have an exhibit, and it might be possible to co-operate with them. Plans should be made this fall for an exhibit on this train. It is hard to measure the value of such an exhibit in dollars and cents, but we know that advertising pays, and we feel that the Booster Tour and the part you took in making it possible was very much worthwhile. I was mighty glad to be able to make the trip, and was glad to represent the various industries concerned with the exhibit.

If there is any way that I can co-operate with the growers in any way, I shall be glad to do so. I know that you are co-operating with Mr. Bain. I believe a lot of you are doing things of a more or less experimental nature along the line of fertilizers, forecasts, etc. I am sure that if you could keep him thoroughly posted on what you are doing and let him summarize that material and present it at your meetings, or in letter form, it would be very valuable to the cranberry industry.

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## IS SUNSHINE ESSENTIAL TO GROW PERFECT FRUIT?

By HENRY H. GEBHARDT

Much has been said of late regarding sunshine and its relation to fruit and plant life.

I am convinced that most of you are agreed that under the present conditions sunshine is necessary to grow perfect fruit. We are not

alone in this thought or view. Other fruits with their appellation prove this: Sunkist Oranges, Sunmaid Raisins, etc. By perfect fruit we would mean fruit normal in size, well colored, and having a keeping quality that would permit it to go into the market in good condition and keep a reasonable length of time after being there. We know that as a rule fruit that is grown deep in the shade does not have those qualities. This applies not only to cranberries, but to nearly all other fruits. Therefore dressing or pruning the plant is one of the most important things to do. Where the plants are too thick it is impossible for the sun to do its work. You know that we are all more or less selfish and want the plant to produce to the very limit, and that every year. When this condition prevails, the fruit will not be perfect.

Now for a moment I want to take the opposite side and show that perfect fruit has been grown, and that without sunshine. Do you know that the sun never shone on the earth prior to about 4400 years ago? Man has been on the earth 6056 years. He was placed in a perfect garden with perfect fruit as his heritage. There was no sunshine in this garden, nor was there any for a period of 1656 years thereafter. The whole earth was like the condition of a hothouse. A very uniform temperature throughout the entire earth. Positive evidence proves this fact.

When the great canopy which surrounded the earth and made the earth's temperature uniform broke, then for the first time the sun shone on the earth. It was then we got our cold, our heat, winds, storms, cyclones, tornadoes, rain and drought. Here it was that we got our present condition, and we have had it for about 4400 years. Let me give you the positive record written about 4000 years ago. It reads thus: "Thus I was; in the day the drought consumed me, and the frost by night; and my sleep departed from mine eyes." Is not that the true picture of the conditions on the earth to-day, and does not that picture the one who is trying to grow perfect fruit at the present time? It surely does.

The sun at the present time under the present conditions is responsible for the abnormal conditions of the temperature causing these varied changes in the earth's atmosphere. And yet if it were not for the sun man could not exist on the earth.

The question may then be asked, "Will these conditions of cold and heat, storms, cyclones, drought, and excessive rains always be on the earth to harass man?" Scientists answer no. They tell us that at the present time there is again forming a canopy on the outer edge of the atmosphere, not of water as the last one, but a ring of gas, and this will again bring the earth to another changed condition in which the uniform temperature will prevail. The Good Book corroborates this, and tells us that the whole earth is going to become like the Garden of Eden. If no sun shone on the earth before the last canopy fell, and perfect fruit was man's heritage, we can readily see that when this covering which is forming is complete and will not



permit the direct rays of the sun to shine on the earth, that the present abnormal conditions will be a thing of the past. Then, and then only, will man have perfect fruit, which will indeed then be perfect, and that without any direct rays of the sun.

## PIONEERING

By ANDREW SEARLS

I bought my first piece of land and got started in the cranberry industry in 1873 in the town of Cranmoor. At that time all a man was expected to do to put this land into condition was to cut a few ditches and build a few dams with the sod from these ditches, and after a short delay harvest his cranberries. My brother Jacob was associated with myself in this early venture. After cutting a few ditches to put our first venture under way, we bought a farm to put in our spare time, for, of course there must be a lot of spare time. After a couple of years of waiting for our cranberry venture to get well under way, coming up every fall to harvest our berries, for we had a few patches of wild cranberry vines upon our land, and being regularly disappointed in the harvest, we looked about to see what was the matter. We realized that we did not have enough cranberry vines to produce much of a crop; that we must plant vines, or buy more land with cranberry vines already growing upon it; so we bought more land and cut more ditches and built more dams, and planted vines.

At that early day the planting of cranberry vines was a very simple matter. We and our neighbors would select a piece of marsh free from brush or trees, and gather some wild cranberry vines and stamp them down into the ground expecting them to grow, which they usually did in a rather hopeless way if we had a normal amount of rainfall, but if the weather became dry and hot the vines, of course, died. This was rather discouraging, but we still persevered.

One of our neighbors, Mr. R. S. Smith, had read a book on cranberry culture. The writer advocated surfacing the marsh before planting. This plan looked reasonable, the vines being less likely to die, as the plants were spread broadcast upon the moist peat. So my brother and I followed this method, which seemed to promise better results. Vines were less likely to be injured by early frosts, the harvesting became more concentrated, and we were gathering berries from a thousand acres of marsh.

We had reached this stage in 1893. We seemed to have prospects for a couple of thousand barrels when the bloom had fallen and the berries started to grow, but the weather became exceedingly dry in July—no rain had fallen since May—fires began to threaten, frost began to get in its work, and as no water was available to protect

our berries, before harvest time most of our prospective two thousand barrels had been ruined by frosts.

One afternoon I was at Mr. R. S. Smith's place in the blossoming season. He showed me a small field of cranberries I thought to be the finest thing in cranberries I had ever seen. He explained that this field had been sanded before being planted, and I think three years old. Then it became plain to me that the ground not only should be surfaced, but must be sanded also.

Judge Gaynor had been elected to serve as our representative at Madison to get a bill passed appropriating a small amount of money to help the cranberry growers, proposing to form three experiment stations where different varieties of native wild vines would be tried out. We found three stations could not be managed with our appropriation, so reduced to one station, and that was located at the Gaynor marsh. It was later enlarged to five acres, and I was given charge of this work. The dry weather which started in 1893 continued for three years, and a great many of the cranberry marshes were burned out, some so thoroughly they were never rebuilt. We were casting about for a water supply. We had all read wonderful stories about what windmills would do, so I put up a couple of mills at the experiment station. At this time we had not even heard of the gasoline engine. The windmill was a failure. We could not get a well large enough to supply the mill. We found the wind had the habit of loafing around in the morning, usually laying off early in the afternoon, and if there was a frost in sight it probably would not blow at all that day.

We had not looked into the prospects for artesian water so this cranberry association ordered me to get a drilling machine and get busy. I drilled a well at my place at Walker, and struck granite at twenty-two feet. I dug one well about one-half mile west of my house, striking granite at twenty-four feet. I drilled one well eighty rods east of Bennett's house, struck clay at twenty-eight feet, found about twenty feet of sand, and did not reach granite. At the experiment station I struck clay at 28 feet, three feet of it, then 24 feet of clay and soft rock, reaching granite at 57 feet, but no water. The Arpin well was put down 225 feet, 23 feet of sand, and found two layers of very dark red clay of 50 and 40 feet. There is a possibility of iron in paying quantities. I believe this should be investigated.

I had surfaced and planted on the experiment station, finally having put on two inches of sand according to Mr. Smith's method. The end of the first growing season showed very promising appearance, but the following spring the flood waters backed in on the field, raising the ice and pulling up the vines.

Our experiments with the windmills at the station did not satisfy me. I put in two mills at home. They would pump like the dickens for a while, then quit or loaf on the job, so I put in a gasoline engine, then dredged a two and one-half mile ditch from which to pump. We have a 5,000 gallon a minute pump which can be run for

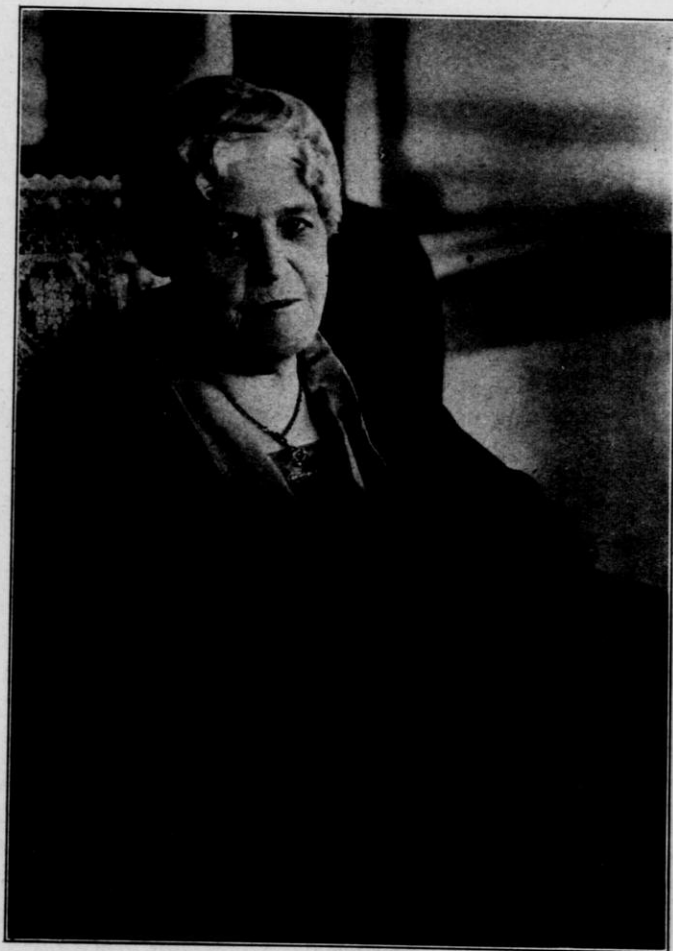
days without exhausting our water supply. Our pump is so located I can pump water off as well as on; for instance, if our reservoir is getting low and we have occasion to flood the marsh we can start our pump and put the water back into the reservoir to be used over and over again; if the reservoir gets so low water will not flow onto the marsh we start the pump and pump the water on. Then, when we wish to drain the marsh, we open the reservoir flumes and allow a large part of the water to flow back into the reservoir, pumping the low drainage back.

I have had a long period of experience with the black-head fire-worm; my first bout with him was over twenty years ago. I noticed, one fall, a small patch of vines badly eaten by worms. I think it was in September, when walking through these vines great numbers of small dark colored millers would rise from the vines, fly away a short distance and settle down. The next spring I was on the lookout for the first signs of the young worms. I think it was the 25th of May that I discovered them at work on the young growth and buds evidently doing great damage. I had read some article written by a man in New Jersey, saying the proper and only remedy was to flood the marsh, so I immediately put the whole marsh under water and kept it there thirty-six hours. Some worms would climb up on the grass, but I got the most of them. It has been my custom to flood the marsh about the first of June. If the worms appear earlier we flood at once. There is quite a variation in the time of the worms appearance, one year as late as the 10th of June. This last summer we flooded as usual, but I cannot explain the second crop of worms appearing in July. I believe that when the worm flood was put on late in May these eggs had not yet hatched, because of the field being heavily vined. When discovered, they were surely doing things up in good shape, berries as well as vines being ruined.

We have long since abandoned old ways and methods for newer ones, and the field for further improvement is immense. By large reserve ponds and pumping equipment dry seasons are not so much dreaded as in years past. Now the watchword is better cultivation, finding the best producing, the hardiest and most disease resistant varieties, as well as ways and means to combat the inroads of pests and plant disease.

The experiment which has given me the most satisfaction is the cultivation of a variety of cranberry I found growing wild in our swamp about 1893. This variety, known as Searles Jumbo has been marketed for nearly twenty years.

During all these years we have been blessed with a wonderful lot of friendly neighbors, all being ready to lend a helping hand when trouble showed up as it often did, especially in the dry period when fires were abroad threatening every one. It is my opinion that the reason the Cranmoor district has "come through" as it has was because of this willingness to help one another.



MRS. ANNA DOWNS WHITTLESEY

## IN MEMORIAM

Mrs. Anna Downs Whittlesey

Whereas, Mrs. Anna Downs Whittlesey, a member of this Association, to whom the individuals composing it have been tied by bonds of unusual affection and respect, has in the fullness of her years and the ripeness of her wisdom experienced the great adventure:

Whereas, Mrs. Whittlesey, whom we might well call the mother of the cranberry industry in Wisconsin, was with her husband a pioneer Wisconsin cranberry grower and continued actively engaged in it up to the time of her death; she being one of the earliest members of this Association, for many years served as its Secretary, resigning these duties only when the conditions of her health compelled; rendered an especial service to the industry by widely teaching the best way to cook the cranberry; has ever been foremost in willingness to give of her strength, her time and her thought for the advancement of the interests of the Association, of the cranberry industry and of the persons engaged in it, as well as devoted to her family and her friends:

Therefore Be It Resolved, That the members of the Wisconsin State Cranberry Growers' Association do hereby record the deep sense of personal loss her death has caused; their admiration and affectionate regard for her and their sympathy with the bereaved members of her family; and this Association hereby directs that this resolution be spread upon the records of the Association and that copies be sent to the members of her family.

GUY NASH,

C. L. LEWIS, JR.

*Committee.*

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## MINUTES OF FORTY-SECOND ANNUAL MEETING

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The forty-second annual meeting opened with a banquet and dance at the Witter Hotel, Wisconsin Rapids, on Tuesday evening, December 4, 1928, with nearly 125 growers and friends attending.

The business meeting was called to order at 1:15 P. M. Wednesday, December 5, at the Realty Hall, Wisconsin Rapids.

Minutes were read and approved.

Financial report read and approved, and County Fair Exhibit bill presented. Motion made and seconded that \$50.00 each be allowed for services of those in charge of the work.

Telegrams from Mr. Chaney and Mr. W. A. Duffy were read, expressing regret in not being able to attend the meeting.

S. N. Whittlesey, Guy Nash and Andrew Searles were appointed on the auditing committee. They reported the books correct. Recommended that the fund in the state treasury be drawn for some expenditure.

Addresses were given by Mr. E. L. Chambers, State Entomologist, Mr. Vere Johnson, and Mr. W. J. Greve.

Moved and seconded that the Secretary write a resolution of thanks to Mr. E. L. Chambers for his help and co-operation; also to Miss Abbie Marlatt and Mrs. Nellie Kedzie Jones in appreciation of their efforts in getting out the booklet, "Cranberries in the Diet".

Moved and seconded that the President appoint a committee of three to confer with the Mutual Employers Insurance Company to secure a lower rating for cranberry growers. M. O. Potter, A. B. Scott, and A. E. Bennett were appointed.

Some very fine pictures of the raking machine used on eastern bogs were shown. Moved and seconded that the President get more definite information in regard to the machine and negotiate according to his discretion.

Moved and seconded that a vote of thanks be given the Wood County Board for their appropriation; also to Mr. Bennett for his excellent presentation of the matter to the Board members.

S. N. Whittlesey, W. Fowler, and Mrs. Otto were appointed on a nominating committee for election of officers. A. B. Scott of Valley Junction was elected President for the ensuing year. A unanimous ballot was cast for president, vice-president, and secretary.

Moved and seconded that next winter's meeting be held on the first Wednesday in December with the banquet following the business session.

Moved and seconded that a rising vote of thanks be given the retiring president, Mr. Albert Hedler.

Motion carried to adjourn.

—C. S. SMITH, *Secretary*.

New York, Dec. 4, 1928.

Wis. State Cranberry Growers Ass'n.:

Sorry I am unable to be present to enjoy your meeting. All things considered we think Cranberry Industry is closing its banner year. Exchange employees join in wishing all a very enjoyable meeting.

—A. U. CHANEY.

Madison, Wis., Nov. 30, 1928.

Wis. State Cranberry Growers Ass'n.:

Because of pressing engagement in Chicago, will be impossible to appear on your programme Wednesday, Dec. 5th. I assure you of my keen disappointment. I wish to extend my best wishes for a successful meeting and the continuation of the splendid program of the Wis. State Cranberry Growers Association.

—W. A. DUFFY.

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## ADDRESS

By E. L. CHAMBERS

When your chairman mentioned something about the State Horticultural Society it dawned on me that I was instructed by Mr. H. J. Rahmlow, secretary of that organization, to convey to you for him the greetings from the Horticultural Society and express his regrets that it was not possible for him to meet with you. Both Mr. J. E. Leverich, who, as you know, is the president of the society, and Mr. Rahmlow had counted on meeting with you and becoming better acquainted at this winter meeting but owing to the fact that their winter meeting is now in progress at Milwaukee, this was not possible.

It is of historical interest to note that fifty years ago the spraying business was unknown and insect and disease troubles were considered more or less unescapable acts of Providence. Our grandfathers, we remember, were prone to boast of the fine fruit produced in their days without even ever hearing of a spray or a sprayer. We are asked time and again by these older men why it is that we have to spray for everything today when in their youthful days they never thought of it. Undoubtedly there were fewer pests and smaller losses fifty years ago than we have now because a little study given the matter shows us that our orchards, fields and cranberry bogs are becoming closer and closer together each decade as they increase in number, and propagating stock has been introduced from all parts of the world during this period and with it has come these pests.

Practically all of our most injurious pests that we are compelled to fight today are imported ones. Although these undesirable immigrants were being recognized as a serious menace fifty years ago when the San Jose scale became established in California, it was not until 1912 that sufficient pressure had been brought to bear to restrict the movement of horticultural products into this country.

We may also fairly assume that we have a much higher standard now as to just what constitutes "good fruit." Fifty years ago we had no marketing regulations requiring grading as to size and freedom from bruises and insect and disease blemishes, for at that time the fruit was consumed almost entirely as beverages and spreads and consequently sundry blemishes and a few worms didn't make much difference so long as the consumer was not aware of them in the finished product.

The Colorado potato beetle and the San Jose scale were two insects responsible for the development of the art of spraying and the manufacture of insecticides and spray apparatus in this country. These two pests threatening the very existence of the potato and apple growing industries encouraged the progress in insect control that has placed our country in the lead in the spraying industry.

Many people are surprised that an entomologist does not seem to know every insect upon its mention and a means of controlling it. They forget that there are now more than 500,000 species of insects named and described and that it would take several days to simply read the list of them, say nothing of trying to recall the life history and control of each, if known. Like plants and other animals, each species has its own peculiarities and characteristics and must be studied with the view of discovering somewhere in its life cycle a weak point where it can be best attacked by some means or other. We have been spraying so much that whenever any ailment is found affecting our crops we immediately inquire what spray should be used to remedy it. There is a limit to everything and our apple growers have been advised by our pure food and drug department that they have, in some cases, more than reached this limit. The English market has objected to many shipments of American apples because of the presence on the surface of a spray residue. While the reports of the danger of these residues have been grossly exaggerated and it is said it would be necessary to eat about a barrel of apples, cores and all, in order to get enough poison to cause noticeable illness, nevertheless it is a matter which will have to be considered in future spray programs.

Dr. Franklin, as you know, has raised the point in his recent bulletin concerning the accumulative effects of certain chemicals in the soil where a bog is receiving frequent spray treatments over a period of years. There has never been any observation of this kind in Wisconsin but there is always a possibility of such ill effects showing up where a long time crop, such as cranberries, receive spray treatments over a period of many years. We have, however, fields which have grown potatoes continuously for twenty-five years and received hundreds of heavy applications of spray material without any sign of ill effects. On account of these possibilities the entomologists have, wherever possible, tried to avoid the use of sprays and more emphasis is being placed just now on biological and mechanical means of control. One of the principal things to remember in the control of any insect is that clean culture and burning of any weeds

or debris which may harbor insect life is cheaper and more effective than trying to kill them at the time they are doing damage to the crop. Since water for flooding is a necessary part of the equipment of a bog, it is very probable that those working out the future control methods will attempt to utilize this source of equipment wherever it can be used effectively without affecting the cultural practices. Since the use of floods kill parasitic insects which are beneficial in controlling harmful ones about the bog, it is always costly to do half a job since usually more damage results than good from such a practice as very likely the job is just good enough to kill off these parasites and not sufficiently effective to cause any very noticeable reduction of the pest the treatment was intended for. Under these circumstances the treatment would be better not applied as the parasites killed would doubtless do more effective control work than was accomplished.

The value of these parasites is a factor in insect control which we are coming to regard as being more and more important each year. One grower informed me that while he has a fairly good crop every year, he felt it would be a conservative estimate to say that the insects take half of it each year. Were it not for a host of parasites to keep the major cranberry pests under control, we can see what a problem it might be to attempt to grow any crop without spraying.

The potato bug, as you know, was very scarce during the past summer due to the effective work of certain of its parasites. Recently the potato bug became introduced accidentally into Germany and with none of its parasites present in that country it is proving to be an extremely serious pest and causing as much alarm there as the corn borer has been here.

When a foreign insect becomes established in a country in the absence of any of its native parasites it becomes necessary to introduce those parasites. In doing so it is necessary to make sure the parasite is not itself a pest and that it is not being accompanied by any of its particular parasites since nearly every insect has others that are parasitic upon it, which reminds us of the little poem,

"So naturalists observe a flea  
Has smaller fleas that on him prey,  
And these have smaller still to bite 'em,  
And so proceed ad infinitum."

Since your problems of control are different from those of any other industry and those of your own industry here in Wisconsin are different from those in other states, it is necessary that they be solved right in your own bogs and to this end we have in mind a program which we hope to have working in another year which will make it possible to make rapid strides in this direction. Under an arrangement now being worked out, the federal government co-operating with the Wisconsin Department of Agriculture will be spending more than double the amount of money on your problems which



has been spent on this work in the past few years and the field service will be improved as well as greater activities being conducted along research lines.

## RESUMÉ OF OUR CRANBERRY PROBLEMS

By MR. VERE JOHNSON, Tomah, Wis.

I am among the younger generation in this association, and I do not propose to tell you older fellows how to grow cranberries. The facts of the matter are I don't know anything about it myself. I feel a great deal like the time that I graduated from high school. I had to answer the address of welcome. Of course, I did not want to. I went to Mr. Naylor. He said, "Vere, get up in front of the crowd, put your feet together, put your hands on your hips, throw your shoulders back, and tell them you didn't want to do it but you were the only one in the class who could do it so you suppose you would have to." And you know, it worked. Now, I am not going to try that on you people, because it really is an honor to have the privilege of talking to this association, and I am grateful for the opportunity.

Early in the nineteen hundreds my father began to acquire the property that our bogs are built on, four miles northeast of Tomah, on Mud Creek. He gave the Danos a half interest to scalp, plant, ditch and get a water supply ready for forty acres. In turn, the Danos gave W. Warren a one-fourth interest to finance this work. This bog is a deep peat marsh. Mud Creek was dammed up and forced around through it. The vines were planted in 1906, 1907, and 1908. The bog was bearing well in 1910, 1911, and 1912. The war came on, and wages were high. They kept one man from early in the spring until after the berries were shipped. One man cannot do much weeding, cleaning ditches, and dam work without help. As a result, the place became very weedy, full of wide leaf and willows. They were the bane of our existence. The water was held high with little or no drainage, and the moss became knee deep.

These conditions existed until the spring of 1919, when my father and I bought the other half that belonged to Danos and Warrens for a consideration of \$10,000. We considered it necessary, first of all, to get rid of the moss. We put on 6100 pounds of limate that cost us \$48.90, and six and one-half tons of lime that cost us \$125.00. The wages for putting it on cost us \$235.00. It cost \$20.00 to haul the material out, making a total cost of \$380.00 for liming our marsh. It took us twenty days with four men to do it, and we were done June 25. Needless to say, we got the moss. July 14 of that summer we had another big disaster. The fireworm showed up, and in three days he just riddled things. In 1919 I did not know about the fireworm, but it was generally understood that you could drown



them. Of course, we tried it. We gave them a set back, but our dams were not in shape for a fireworm flood and our water supply at that time was very limited. From 1919 to 1922 they surely went after us. We started a rod out into the sections from our main flood dams, digging a ditch four feet wide and three feet deep. The object was to make our dams wider and heavier so we could use them for road dams and get them sanded. We have these dams fixed up so we can put quite a flood on now, but at that we don't seem to get the fireworm 100 per cent yet. They still bother a little each year.

The next big thing we went after was willows. We figured we had to get rid of the source of contamination. There were forty acres of solid willows south of our marsh. We bought a Case tractor, put thirty-six inch rims on it, hitched a twenty-four inch breaking plow to it, broke those willows up, and put the ground into rye. Then we hired a man all of one summer to get the willows out of the dams. We gave George Canoe, an Indian, \$200.00 to take the willows out of the sections. He took a crowd in there after raking in the fall of 1922, and took them all out. Immediately after this was finished, we put the flood on. We have had very little trouble with willows in the sections since then.

Next comes wide leaf and bunch grass. We tried all the short-cuts we had ever heard of. We took this tractor with wide wheels and rolled our whole marsh with it. Now, our experience has been that dry rolling with that tractor did little or no good except on short wire grass. It did slow up the short wire grass considerably. But we found that under certain conditions if we flooded the bog and rolled in the water, it helped a lot. One section which was a solid body of wide leaf and hardback was weeded 100 per cent. The reason for this success was that it was done early in the spring when the frost was out of the top of the ground, but was not all out. The frost held the roots of the deeper rooted plants, but the shallow rooted cranberry plants were all thawed out. The process of rolling loosened the top of the ground, breaking everything which the frost held off, but the vines of the cranberries were not hurt at all. That was a very good job of weeding, and very cheap. We had a hard time, however, in duplicating that job on other sections. We could not get conditions just exactly right. But it can be done, for we did it.

In the spring of 1925 we went after the wide leaf. We had finished dredging and building our new reservoir the year before. In the January meeting of 1922 Mr. Potter and Oscar began a real agitation about summer flooding. That was the first I had heard about it. Up to 1925 it had been tried with varying degrees of success by a lot of bog managers. Of course, by that time we were ready for it, and we took a crack at it. Up until the fifth of July we mowed that twelve acres that we were holding under water about ten times. You know wide leaf is very persistent in growing. This summer flood got about 80 per cent of the foul material. We followed this up the rest of the summer by hand weeding. We weeded some of it

as often as three times from July until fall. But I will leave it to the judgment of such people as Mr. Whittlesey, Mr. Potter, or our secretary who have been on our bog, as to whether it was a success. Comparatively speaking, our bog is very clean of foreign material, and in our judgment looks very nice. The condition of the vines that were summer flooded in 1925 is very noticeable yet. I surely am a booster for summer flooding.

One more phase of our fight against wide leaf—that is, the use of kerosene. In the August meeting of 1923 this was talked about, argued about, and hashed over. It was pretty generally agreed that it was good for some things, especially bunch grass in the spring. Now, we doctored eight acres of solid wide leaf with nine barrels of kerosene and three barrels of worn out motor oil, which at that time was thought to be the best mixture. We used it early in the spring, and got a twenty-five per cent kill, except on a patch of about one-fourth acre that had been mowed with a scythe and then allowed to grow again. Spraying this young growth seemed to kill the heart of the plant. We had nearly a ninety per cent kill on that piece.

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## YOUR WORKMEN'S COMPENSATION INSURANCE PROBLEM

By W. J. GREVE, *Field Representative of The Employers Mutual Liability Insurance Company, Wausau, Wisconsin*

The problem of obtaining workmen's compensation insurance at the lowest possible cost has been discussed informally by some of your members and has received more or less thought by practically all of you. The consensus of opinion seems to be that sound insurance, full and complete protection, and service should not, however, be sacrificed in order to obtain a slight reduction in cost.

The Employers Mutual was organized during the summer of 1911 by a group of employers who did not feel inclined to pay the high rates demanded by the stock companies for protection under the newly created "Wisconsin Workmen's Compensation Act". The plan of the organizers was to write compensation insurance at the lowest possible net cost, consistent with safety and security. The company was organized as an employers' association and it is being operated as such and as a policyholders' company under the direction and control of a board of directors selected by the policyholders. Our directors are employers and policyholders and are drawn from various industries in this state.

Employers Mutual rates are ten per cent. lower than the corresponding rates of the stock "conference" companies and are subject to further reduction through dividend return. Present dividend return is the regular dividend of 20%, plus a special dividend of 5%.

Policies written by the Employers Mutual give complete and unlimited protection under the compensation act, are fully re-insured against catastrophe hazard, and are strictly NON-ASSESSABLE. The Employers Mutual is the only "non-assessable compensation insurance mutual" operating in this state. That our proposition and our company have been endorsed by the employers of this state is shown by the fact that we write more than one-third of the total compensation insurance business in Wisconsin. This is more than is written by any twenty-one stock companies, and it is more than is written by all other mutuals combined. It is very evident that we could not write and hold this volume of business if our proposition did not have real merit and if we did not render the kind of service the employers want and have a right to expect.

We stand ready at all times to help the employers with their workmen's compensation insurance problems. Records at the state rating bureau show that we lead in obtaining rate reductions. The Industrial Commission records will show that we pay claims promptly. And hundreds of letters on file at our office will show that we are rendering other services besides those just mentioned.

The smaller telephone companies insured in our companion company are saving \$32.00 a year in connection with their public liability insurance cost at the present time, even *without* taking into consideration our 25% dividend. The Telephone Association and its officers co-operated with our company in gathering statistics and data and after studying the situation we found that in connection with public liability protection we could write the risk at a minimum premium of \$94.50 (\$15,000/\$25,000 limits) instead of \$126.00 minimum premium which was and still is being charged by the stock companies.

Our Engineering Department helped the Walker Manufacturing Company of Racine to eliminate accidents in its plant and, as a result, this employer is today enjoying a much more favorable rate than it had when the risk came with our company. Other examples could be mentioned, but I shall call to your attention just one more—and that refers to the rate in connection with the operation of cranberry marshes.

About three years ago we were in touch with a number of the growers in the vicinity of Wisconsin Rapids as it was felt that the operations were incorrectly classified. At that time all work in connection with the marshes or bogs was classified as "Farm Labor", except that ditching, building construction, and similar operations were separately classified. Even the work of harvesting the crop—mostly hand work, so I've been told—was included in the "Farm Labor" classification.

The information we collected during the course of our investigation was turned over to the state rating bureau and after the matter had gone through the proper channels a change in rate was ordered. This change applied to the cultivation, harvesting and packing of the crop and the classification wording reads as follows: "All opera-

tions in connection with the cultivation, harvesting and packing of cranberries, excluding land clearing, and other operations incidental to the preparation of new cranberry fields." All other operations, except extraordinary construction work, are still classified as "Farm Labor" and are rated on that basis.

If anything further can be done to obtain a still more favorable rating we stand ready to help you, and we shall be glad to work with the members of your association and with any committee appointed by your association.

### Discussion

PRES. HEDLER: A good many of you have policies with the Employers Mutual and all of you have compensation insurance protection. The rate on farm labor is higher than the rate on harvesting cranberries. I cannot see why there should be this discrepancy. Perhaps it would be a good thing to have several representatives meet with Mr. Greve or representatives of his company in regard to reducing the rate on general farm labor.

QUESTION: What has general farm labor to do with our cranberry problem?

MR. GRIEVE: The farm labor classification takes care of the general operations before the vines are set and the marsh is ready for cultivation, and the crop is harvested and packed. When you open a new piece of land or marsh it must be brushed out; ditches and trenches dug, and more or less incidental construction work must be done. This preparation of new marshes is assigned to the "Farm Labor" rate.

MR. VERE JOHNSON: Are we carrying insurance just through the crop season?

MR. GREVE: No. Unless cancelled your coverage runs for one full year from beginning date of protection mentioned in the policy.

I might also mention the following to allay any fear that some operations might not be covered. Compensation insurance policies must cover all liability of the employer under the act, without exception. For instance, if an employee digging a well should be injured, any liability that the employer might have would be covered even though the policy does not show a special rate or classification for that particular kind of work. This is true of other operations not specifically mentioned in policy.

QUESTION: In case a man would handle dynamite, would that be covered?

MR. GREVE: Yes.

QUESTION: Would there be an extra rate in case of use of dynamite?

MR. GREVE: No. At one time a separate rate was charged, but that practice has been discontinued.

QUESTION: I do not understand why we should carry the farm rate.

MR. GREVE: The work involved in preparing new marshes is very similar to farm operations and it is therefore assigned to that rate.

QUESTION: Do you have a minimum rate according to the pay roll?

MR. GREVE: All compensation premiums are based on amount of pay roll expended. If pay roll is not high enough to bring the earned premium to more than the minimum, then the minimum premium applies.



At this time it might be well to clear up a bit of misunderstanding in connection with the inclusion in pay roll audit of the value of board and lodging, and house furnished employees.

In case of claim involving compensation payments, the Industrial Commission requires the insurer to pay indemnity on basis of the earnings of the injured employee. "Earnings" mean his wages plus the value of board and lodging, rent free house furnished by the employer, bonus, etc. The value of board is fixed by the Industrial Commission. However, the value of the rent free house is not fixed, for rental values are not the same throughout the state. Therefore, the figure used in making premium adjustment should be agreed upon by the company and the policyholder, preferably at the time policy is applied for.

MR. C. L. LEWIS: I would like to ask Mr. Greve if, in the ordinary care of the bog which is already developed, there is any classification that goes under the farm labor rate.

MR. GREVE: No. The care and custody of a marsh or bog already developed should be assigned to the marsh rate—"Cultivation, harvesting and packing." Small and minor repairs to existing buildings, dams, and equipment can be assigned to this classification when making premium adjustment.

REMARK: One cranberry grower told me that he was charged a public service rate on his liability policy.

MR. GREVE: I believe the grower referred to public liability protection. This form of insurance is not compulsory under any state law or act at the present time. However it is a desirable form of protection to have, as you are always subject to the hazard of injuries to members of the public who are on your premises, but who are not in your employ. Just before harvest time you, no doubt, have a large number of people applying for work. At all times of the year you have visitors who are interested in knowing just how the work on a cranberry marsh is handled and what a marsh of that kind looks like. For your own safety and peace of mind I strongly urge you to avail yourselves of the opportunity of insuring this hazard. The average public liability cost in our companion company, The Employers Mutual Indemnity Corporation, is between \$8.00 and \$14.00.

Your remark leads me to believe that the grower is insured with a stock company. These companies claim that they are not making money on compensation insurance and they insist that the employer place his public liability and all his automobile insurance with them before they will take the compensation risk. Furthermore, the stock companies are now charging a \$10.00 "policy fee" on compensation insurance policies to help pay the high cost of operating these companies. The Employers Mutual does not charge this "policy fee", still we are in a position to write your business at lower initial rates and make a further saving for you through our dividend return.



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### IN MEMORIAM

We have learned with profound sympathy of the death of Mrs. Maude Searls Deshler, daughter of Andrew Searls, former president of this Association. Relatives and friends have suffered a deep loss. The community in which she grew to womanhood has held her in highest esteem. By those whose work and interests brought them in close association with her, she will be remembered as one who exercised the talents God gave her up to within a few weeks of her demise, taking active leadership in all things educational, unselfishly helping her fellowmen to a broader and happier life.

Recognizing her noble qualities, this Association desires to pay tribute to her memory and tender to the surviving families sincere sympathy in their bereavement.

OSCAR O. POTTER,  
CLARE S. SMITH.

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# 46 WISCONSIN CRANBERRY GROWERS' ASSOCIATION

## FINANCIAL STATEMENT WISCONSIN STATE CRANBERRY GROWER'S ASSOCIATION CALENDAR YEAR 1928

			Dr.	Cr.
Jan. 1		Balance on Hand .....	\$26.28	
Jan. 4		Dues Received 1/3/28 .....	33.00	
Jan. 4	No. 21	Mrs. C. O. Burt .....		\$5.00
Jan. 5	22	E. H. Morrill .....		5.00
Jan. 5	23	Robert Beppler .....		6.00
Jan. 14	24	L. P. Daniels .....		9.00
Jan. 28	25	R. A. Peterson—Expense Donation-Tour .....		25.00
Feb. 8		Wood Co. Board Appropriation .....	250.00	
Feb. 20	26	H. J. Rahmlow, Secretary, W. S. H. Soc. ....		19.20
Apr. 13	27	Erma Gaulke—Steno. serv. 1/3/28...		15.00
May 2	28	Henry R. Ebsen .....		10.00
May 16	29	A. C. Rockwood—200 wrappers and stamps .....		4.30
May 19	30	C. S. Smith .....		10.00
June 11	31	C. S. Smith—Bal. salary to Jan. 1, 1929		30.00
June 12		Receipts .....	6.00	
July 17		Receipts .....	2.00	
July 17	32	C. S. Smith—Salary to 7/1/28.....		40.00
Aug. 1	33	A. C. Rockwood—200 st. envelopes..		4.38
Aug. 10		Dues .....	22.00	
Aug. 15		Dues .....	81.00	
Aug. 22		Dues .....	13.00	
Sept. 8		Dues .....	15.00	
Sept. 20	34	Anna Bamberg—Co. Exhibit fixtures.		8.50
Oct. 5	35	Erma Gaulke—Steno. report 8/14/28.		15.00
Oct. 30		Dues .....	7.00	
Nov. 21	36	A. L. Fontaine—160 double postcards.		3.20
Dec. 3	37	Anne Bamberg—Express .....		1.17
Dec. 6		Dues .....	24.00	
Dec. 7		Dues .....	6.00	
Dec. 7	38	C. S. Smith—Postage, env., express..		9.38
Dec. 7	39	Mrs. C. O. Burt .....		5.00
Dec. 7	40	Ed. Morrill .....		5.00
Dec. 7	41	Chas. Parker .....		5.00
Dec. 7	42	Anne Bamberg—Serv. Co. Fair Exhibit		50.00
Dec. 7	43	L. P. Daniels .....		5.00
Dec. 17	44	H. R. Ebsen .....		8.00
Dec. 22	45	Erma Gaulke—Steno. report; misc. work, 12/5/28		10.00
Dec. 22	46	C. S. Smith—Salary to Jan. 1, 1929...		40.00
Jan. 1, 1929		Balance on Hand .....	\$485.28	\$348.13
				137.15
			\$485.28	\$485.28

