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Wisconsin State Cranberry Growers' Association. Forty-ninth annual meeting, Wisconsin Rapids, Wis., December 10, 1935. Forty-ninth summer convention, Wisconsin Rapids, Wis., August 20, 1935. 1935

Wisconsin State Cranberry Growers Association
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**WISCONSIN STATE
CRANBERRY GROWERS'
ASSOCIATION**

FORTY-NINTH ANNUAL MEETING

Wisconsin Rapids, Wis.

December 10, 1935

FORTY-NINTH SUMMER CONVENTION

Wisconsin Rapids, Wis.

August 20, 1935

**WISCONSIN STATE
CRANBERRY GROWERS'
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FORTY-NINTH ANNUAL MEETING

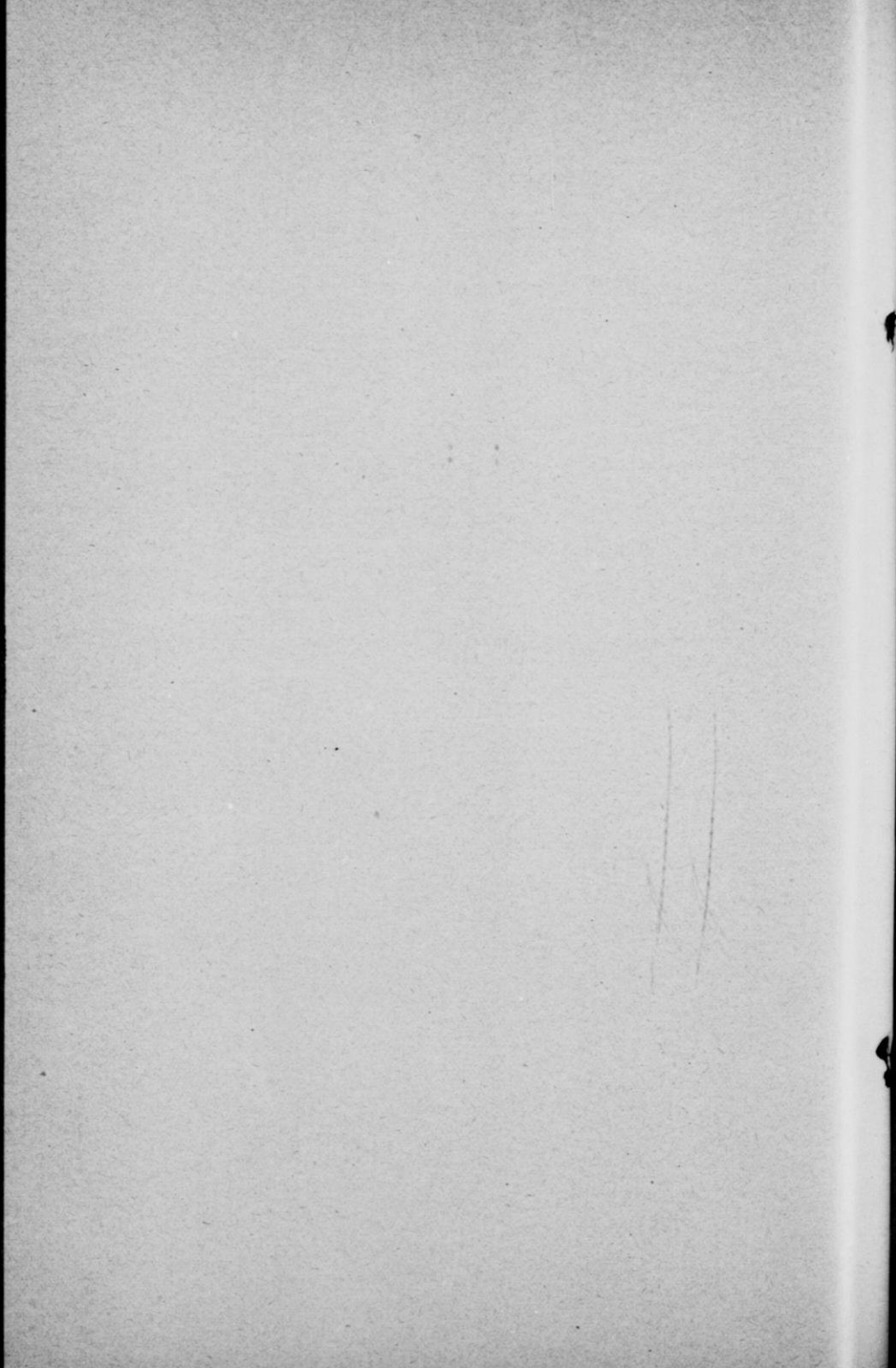
Wisconsin Rapids, Wis.

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LETTER OF TRANSMITTAL

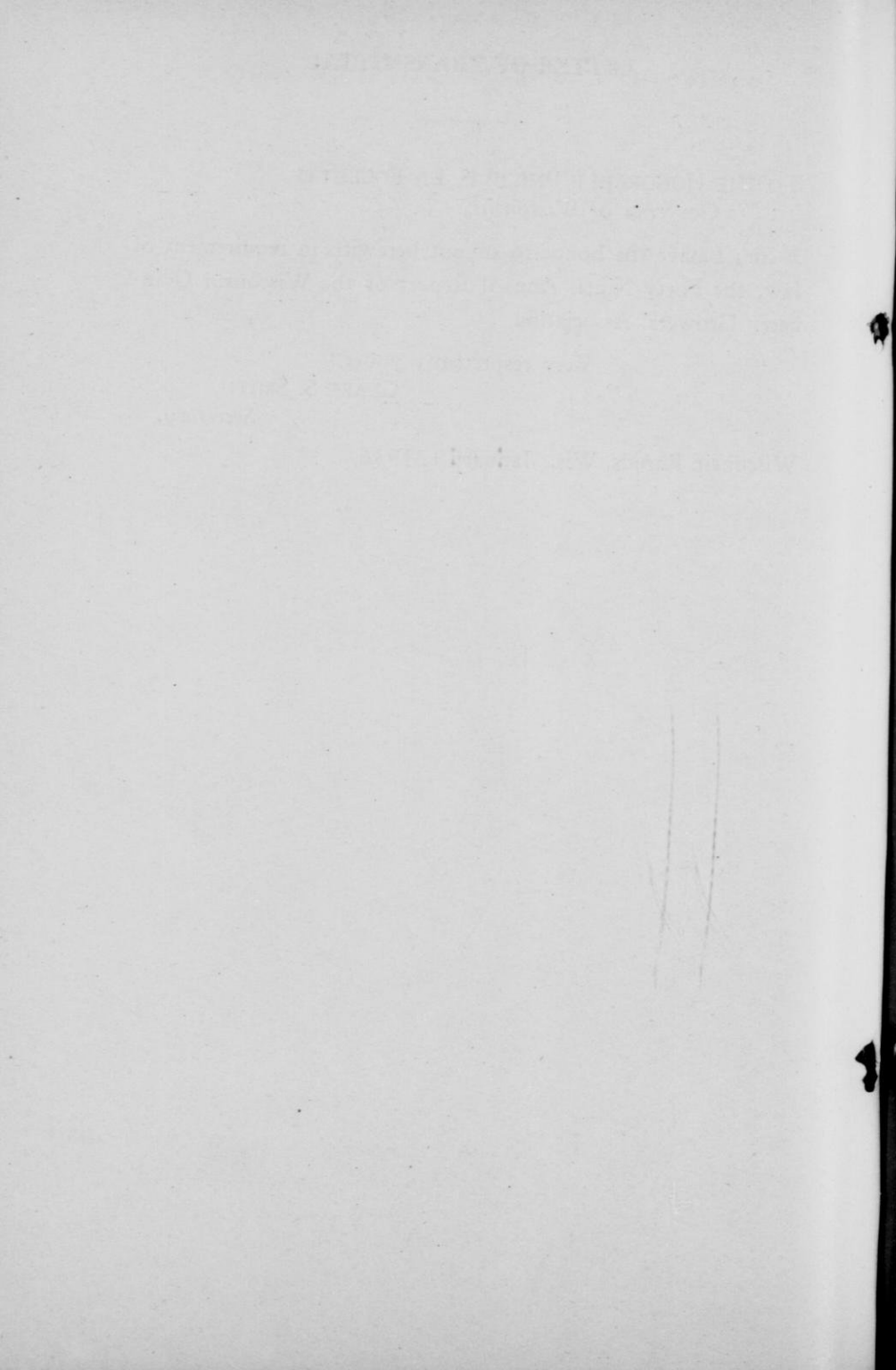
TO THE HONORABLE PHILIP F. LA FOLLETTE,
Governor of Wisconsin.

Sir: I have the honor to submit herewith in requirement of law, the Forty-Ninth Annual Report of the Wisconsin Cranberry Growers' Association.

Very respectfully yours,

CLARE S. SMITH,
Secretary.

Wisconsin Rapids, Wis., January 1, 1936.



MINUTES OF THE FORTY-NINTH SUMMER MEETING

Meeting called to order at 2:00 P. M. August 20, 1935 in the Rose Room, Witter Hotel, Wisconsin Rapids.

Following President Herman Gebhardt's address, talks were given by Mr. E. L. Chambers, Mr. L. M. Rogers, Mr. A. Kanneberg and Mr. A. U. Chaney.

Minutes of the last meeting were read, also the financial report. Both were accepted as read.

A vote of thanks was extended to Mr. C. L. Hill of the Department of Agriculture and Markets and to Mr. Calvert of radio station WLBL for including in their weather report the weather conditions of Minnesota.

Moved and seconded that the secretary write them to that effect.

Motion was made and seconded to hold our next meeting on the first Wednesday in December.

Guy Potter presented a report of the work, growers in his district had done in regard to possible interference of water flowage in creeks and ditches.

Motion made to extend thanks to Mr. Daniels for the use of the Rose Room.

Motion made and carried to adjourn.

CLARE S. SMITH,

Secretary.

ADDRESS

HERMAN J. GEBHARDT, *President*

I am glad to greet and meet so many of the Wisconsin cranberry growers at this, our annual summer convention. We are about to enter upon the task of harvesting the Wisconsin cranberry crop and as the gathering process continues the opportunity is at hand to study our mistakes, the lost opportunities to have brought forth a larger and better crop or the satisfaction in realizing that we have been of material assistance in aiding nature to bring to fruition a bounteous yield. Regardless of weather conditions and all, much rests with the grower himself for he must adapt himself to the quickly changing conditions brought forth by weather and seasons. Perhaps there is no branch of agriculture wherein there lies the opportunity to cope with adverse growing conditions and successfully master them as in the art of growing cranberries.

We consider the past three or four years about the dryest known and I need not remind you of the anxiety and loss entailed in consequence of the unexpected conditions thrust upon us. Many of you have improved your reservoir and water supplies and would now almost welcome a renewal of dry seasons to show what you could do should a recurrence prevail again. There is always a certain satisfaction when mastering difficulties. It is not alone the financial reward that pleases us; it is not so much the possession but the acquisition of wealth that gives pleasure.

The heavy fall of snow last winter gave the growers an excellent natural covering for their vines and with the excessive rains of spring it seemed an easy proposition to grow an excellent crop of cranberries. A full reservoir indicated ample protection against Spring frost, the fire worm, the invasion of the blunt-nose leaf hopper and drought. Nevertheless there were factors that tended to prevent growers from getting a good yield. It was one thing to have a good bloom, another to have the bloom develop into fruit. Undoubtedly due to the excessive rains of July, the cranberry foliage, especially where thick, remained in a dampened condition abnormally long which is not conducive to good setting of fruit, for the insects that hover among the bloom refrained from working thereon and consequently a lack of fertilization. The blossom of the cranberry hanging in a downward position would indicate that nature intended the distribution of pollen to be through the movement of insects among the bloom rather than a distribution by air currents. Regardless of the adverse conditions, many of which were beyond the control of the grower, Wisconsin is about to harvest a fair yield.

With the several drouthy seasons still in mind and the general havoc brought forth by the large drainage districts of the past, a new enemy seemed to appear in the proposals of the land policy section of the Agriculture Adjustment Act. In a general way it was proposed to either lease for a period of fifty years or purchase the county lands in certain project areas, together with sub-marginal lands purchased from individuals, and establish nesting areas, reforestation and the conservation of waters therein. It immediately became evident that the impounding of waters without any assurance as to

when it might be released for growers' use, might result disastrously to growers so situated, and it became necessary for growers to see that a re-arrangement of project boundaries was made and legislation permitting the release of impounded waters when necessary for the growers' use.

The fireworm again made its appearance, but so far as I am able to learn timely action generally prevented its spread. Thus we find that the 1935 growing season, favored as it was with a bounteous water supply, had its detracting factors and growing the much desired cranberry is not without its problems.

Our secretary, Miss Smith, who not only has the ability to handle a cranberry marsh and can, if necessary, perform most of the tasks thereon, has arranged a program. Those participating thereon are in a position to talk to you far more intelligently than I as to the crop prospects, economic conditions, prices, insect pests, spraying and its results, fertilizers and other interesting matters pertaining to the industry.

To those who are guests and visitors, we hope you will find the meeting interesting and we extend you a hearty welcome.

CROP REPORT

A. U. CHANEY

Mr. Chairman and Friends: I am always glad to come to Wisconsin Rapids to your cranberry association meetings. If I start my speech with a smile on my face you will understand why. The prospect for the Wisconsin cranberry crop this year is exceptionally fine, and I wish to congratulate you all upon your success of bringing your crop through this far. We all hope to finish up to complete the successful year. Many of you are expecting much better crops than of former years and I am glad to see that. I certainly have confidence in the cranberry business. I feel that for the good outlook of this season we have much to be thankful for.

The Cape Cod Association holds their meeting on the 26th of this month, the New Jersey Association on the 29th, and the Sales Company a week after that. At those meetings they will turn in the crop estimates for this year. Their estimates may not agree with ours and we may be wrong in our estimates. All we can do now is make wild guesses. I have made certain estimates of different crops in this State and I find it as a whole is large. We guess now the crop of Cape Cod to be around 375,000 barrels. I guessed 350,000 barrels last year and we shipped much less than that. The crop this year is very spotted. Many of the bogs in New Jersey are sprayed with bordeaux to avoid the fungus growth. The Early Blacks and Howes have done very well in New Jersey this year. The Native Jerseys are very spotted and uncertain. My brother and I have been all over the State and our estimate for New Jersey is 90,000 barrels, but that is only another wild guess. We guessed it to be 90,000 barrels last year, and they shipped only 70,000 barrels.

Many of you Wisconsin growers appear to be afraid of the marketing con-

ditions this year. The price of the other fruits being so low this year, they are afraid there will be no market for cranberries. Most of the low priced fruit will be out of the way by the time cranberries begin to come on the markets. At least, we hope that will be true. I have noticed that cherry growers in Sturgeon Bay have been having ads in the papers for men and their families to come up there and pick their own cherries at a very reasonable price. They have a wonderful crop and the price they advertise is only 2½ cents a pound on the tree.

I cannot say anything very definite as to what marketing conditions may be this Fall, as so many things can happen between now and the time your berries will be ready to ship, other than that it looks encouraging.

SOME MAJOR PROBLEMS

E. L. CHAMBERS

I have frequently heard the expression used that a person was "busier than a cranberry merchant." With State Fair time approaching, making a little extra work on top of an already busy season, I feel sometimes as though a cranberry merchant couldn't be much busier. But after hearing Mr. Chaney's report on the prospects of a bumper crop and the problems the other fruit growers are having to dispose of their big crops, I can see where a cranberry merchant is going to be a pretty busy fellow again this fall.

Mr. Goldsworthy, I am glad to learn, with a little assistance from Mr. Rogers and others, has agreed to take the time to prepare another interesting cranberry exhibit such as we have had staged by Miss Smith and others for several years to interest the 250,000 State Fair visitors who will pass through the building again this year. We believe without question, this exhibit attracts more attention than any other one we have in our Horticultural Building. This year we plan to show a continuous moving picture of the various activities of our office and we have included in the film the pictures of the harvesting and other cranberry bog scenes that we showed you at your annual meeting last winter. This picture will be shown on a screen across the aisle from the cranberry booth so that we believe that we can interest the throngs of people who mill through our building all week with some of the fascinating work connected with your industry and teach them how the berries are grown and harvested.

Each year I think I will find the time to visit a lot of your bogs and especially those which I have never had the privilege of being on, but there are always new problems to prevent my taking the time. If it isn't a series of army or cut-worm outbreaks, it is grasshoppers, chinch bugs or the corn borer that demand my attention. Last week I succeeded in getting away to spend a weekend with Mr. Bain and his immediate supervisor, Dr. J. R. Magness, in a flying trip through the north. We were impressed with the new development and improvements being made in many places as the result of the good crop of last season. We believe if our legislature could see, as we did, the enormous amount of work and expense connected with the build-

ing and planting of an acre of bog on land otherwise of no value, that they would feel much more kindly to your industry. Personally, I have always thought that your industry should be encouraged by offering whatever state aid there could be extended in the way of eliminating pests, weeds, water problems, etc., because a little investment on the part of the state for this would certainly pay large returns. Without a doubt, the land used for cranberries would not be on the tax rolls if someone didn't take the risk in the large amount of capital and labor necessary to prepare for one of these bogs. The item of a market for the White Pine lumber used for the boxes alone is no small one, but of course, the labor item is the most important in these days of unemployment, and labor is utilized in sections of the state where no other form of employment would be available.

Compared with the time insect enemies of plants have been on the earth and the time man has spent cultivating the plants, we have not had much opportunity to match our wits against these pests of ours. With insects having about a fifty million years' head start, we shouldn't be discouraged when we don't always seem to find a simple control after a few years of study. There has been very little research work done along cranberry growing lines, compared with that in other crops, and effective control measures require a lot of detailed study over years of time. Study of the life history of the alfalfa weevil and certain other insects we happen to be familiar with has been in progress for more than 25 years without finding a weak point where a simple control measure might be effective. Research work cannot be done by men who can't give it their undivided attention. Asking a research man to leave his laboratory with life history studies of an insect or fungus disease organism in progress to do field work just makes his research work impossible. Some way or another Mr. Bain seems to find time to make a few inspections and answer emergency calls whenever he receives them and still continue his research work, but we believe he should have enough help so that his research work would never need to suffer when he is compelled to go into the field on an emergency call.

As an example of what happened, when a man tries to do two things at once, we recall a recent incident in which an acquaintance of ours tried to push a newspaper out of the car window while driving his car. In a few seconds a practically new car was reduced to junk in a ditch along the road. It takes patience and time to carry on research, but all control measures must be based on the results of careful research and, therefore, we believe it is just as important to be carrying on an active program of research as to have a field man constantly checking the bogs for incipient outbreaks. After all, it is important that the field man have the information necessary to control one of these outbreaks when he finds it. We believe we have been fortunate here in Wisconsin in having two men of the caliber of Mr. Bain and Mr. Rogers carrying on their respective duties out of the same office. We realize that the results of research studies in Wisconsin may not apply in other states and vice versa and we know that conditions vary on different bogs so that it is very important that every grower keep complete and accurate records of all of his activities so that the varying results may be accounted for. Run-

ning a cranberry bog without records is about as foolish as trying to run one without a thermometer. It is like keeping a clock running without hands.

The cranberry growers are one group of folks who seem to have no secrets of growing that they selfishly keep to themselves. This reminds me of a story of a young girl who was leaving home to attend college and was following the instructions of her mother that she should never talk to strange men. While waiting for the train at a junction point, the conductor asked her where she wanted to go. Thinking it was none of his business, she gave him the name of a city in another part of the state and was directed to a train going in that direction. While on the train she was relating how she had fooled the conductor to a lady passenger who advised her she was on the wrong train and was headed toward the town whose name she had given the conductor, thinking she was fooling him. Just as she was fooling no one but herself, so would the cranberry growers be doing in trying to mislead their fellow growers by false information.

We learn much from the mutual exchange of ideas and that is the purpose of a meeting of this kind. Whether you can explain or interpret the results you get by following certain procedure or not makes no difference so long as you are getting results. By passing on these ideas to your fellow growers, they may be able to get over some of the rough spots on the road to success and frequently some of their experiences will bring out the missing link you have been looking for. There are lots of theories as to how cranberries should and should not be harvested and stored. It may be that the method you are using is just the way you should not handle your crop. Most growers are too busy getting their work done on time to take the necessary time for experiments, but when faced with an emergency, discover better ways accidentally. As an example of a new development in the marketing and harvesting of a crop, we recently learned from one of our largest sweet corn growers near here the secret of his success. The varieties of corn he was growing were the standard ones and he secured his seed from the same sources his competitors were getting theirs from, yet his customers could not find anything that would equal his product in quality and tasted fresh for several days after packing. He, too, had experienced great losses from heating and souring as a result of some of the long hauls he had to market and finally by trying out different methods being used by other growers, he found a solution to his problem. He discovered by picking the corn early in the morning and pre-cooling the ears for an hour in a cool storage room and then holding them for 30 minutes in a big tank covered with a mixture of one-half each chipped ice and water that the sweetness was brought out and retained in the kernels and the ears did not heat in transit when they were packed and hauled in his trucks long distances and frequently held two days. We get into the habit of doing things a certain way and forget that there may be other ways just as good, or better, if we but give the method a trial.

In visiting some of the cranberry bogs of the state we found that it was a generally accepted fact that where the brown bush grew abundantly the soil was ideal for cranberry growing. We also learned from the literature and by observation that the blunt-nosed leaf hopper which is responsible for spread-

ing the most dreaded disease of the cranberry, the false blossom, also feeds heavily on this bush and very likely the same virus disease occurs on this bush but does not manifest itself in any marked way. Planting clean vines in new bog land surrounded by brown bush seems useless unless the leaf hoppers can be kept from migrating into the bog or eliminated on the brown bush. These insects do not fly very high and a cheese cloth barrier a few feet in height might effectively fence them out, but it doesn't sound like a very practical method. Eradicating the bushes for a few hundred feet or even a quarter of a mile might be effective in removing this source of infection, but this would be too costly and seems out of the question. Still when we stop to consider that we have pulled or destroyed over 5,000,000 barberry bushes in Wisconsin in the past few years to reduce the spread of Black stem rust of small grains and more than 16,000,000 wild currant and gooseberry bushes in the past year to protect some 80,000 acres of White Pine against the deadly fungus disease of White Pine, for which the latter serve as alternate host plants, such a task doesn't sound entirely impossible. In fact, as many as 15,000 wild currant and gooseberry bushes have been eradicated from an acre of swamp land to protect White Pine stands. In protecting White Pine, all of their alternate host plants are dug out within the pine stand to be protected and for 900 feet around it.

Last winter when in Florida attending the National Plant Board meeting held in conjunction with the Southern Plant Board, we had an opportunity of inspecting the wild cotton eradication work in progress in the Everglades near Cape Sable. Although little cotton is grown in Florida and this limited amount is restricted several hundred miles away in the northern part of the state, the Florida Department of Agriculture was co-operating with the Federal government in this project. The purpose of the project was to eliminate the host plant of the pink boll worm, a serious pest to cotton. Before the crews could get into these jungles overrun with cacti, orchids and palms, it was necessary to blaze trails. The work was dangerous because of the large number of poisonous snakes, plants and trees and many of the workers were covered with terrible rashes resulting from coming into contact with these shrubs. The wild cotton in its escaped form grows like a tree and many had trunks several inches in diameter and were as much as sixteen to eighteen feet tall. These trees were pulled out and burned, the work being restricted to the dry season between December and March, after which the rains and mosquitoes made it impossible. The work was being done with relief labor. The project at first seemed impossible but the feat had almost been accomplished when we visited the area. In traveling through this section by auto, much of the route had to be covered over log and bamboo roads and with no supply of gasoline within seventy miles, each car was equipped with two gasoline tanks to make it possible to complete the round trip.

The Dutch elm disease control project now undertaken by the government seems equally as difficult. After seeing the chestnut blight wipe out our chestnut trees throughout the East with no method seeming to be possible to check it, the government is ready to do anything at all effective to destroy this new fungus disease (*Graphium ulmi*), which threatens all of our elms in this

country. With 50% of the beautiful old elms in the boulevards of Paris killed by the disease and hundreds of thousands of other dead elms through Europe as a warning of what we may expect in this country, it is no wonder we become frantic when we find this disease has become established in this country. This disease, like many others, depends upon an insect to spread it from diseased trees to healthy ones. This insect is a small beetle known as *Scolytus multistriatus*.

According to a recent press release issued by the U. S. Department of Agriculture concerning the Dutch elm disease, 998,964 dead or dying elms have been marked for destruction, since the campaign for the eradication of this disease was started two years ago. This season's scouting brought to light only a few more cases of this disease in the four isolated spots outside of the quarantine area where it was found last year. Two of these were in Cleveland, Ohio, four at Old Lyne, Connecticut, ten in Indianapolis, Indiana, and two at Norfolk, Virginia.

ANNUAL REPORT

L. M. ROGERS

In 1933 a check up on all Wisconsin cranberry marshes having frost protection gave the acreage including the 1933 plantings as 2000. The new plantings in 1934 totaled 57 acres and this spring 46 acres of new area have been set to vines making our total acreage at present approximately 2100.

New area to Searls 30 A. New area to McFarlin 14 A. New to Native 2.

Remade from Native to Searls	13 A.
Remade from Natives to McFarlin	5
Remade from Winter-kill to McFarlin	5
Remade from Bennets to Searls	3 1/2
Remade from Bennets to McFarlin	3
Remade from Mixed vines to Early Red	1/2

Making the total acreage planted in 1935 76 acres. Of this amount

46 1/2 acres were set to Searls

27 acres were set to McFarlin

2 acres were set to Native

1/2 acre was set to Early Red varieties

About 250 A. have been resanded, most of it under very difficult conditions. Doubtless much more would have been done but for the excessive snowfall.

Blackheads as usual have caused considerable worry. About 175 acres were flooded for the first brood. These areas were located last season and carefully watched for treatment this spring. Very little direct injury was suffered from the first brood and seemingly flooding injury was at a minimum. Control was good where a full flood of 12 hours was used not earlier than June 13, this late date being made practical by the backward season. On marshes flooded about June 6 as has been practiced for several years past.

control was poor. In relation to the first brood the second has been unusually large.

The tipworm worked normally last season getting through in time for fruit bud formation.

Fruit worms were about as usual eating hard in some fields. Spraying for this pest has been tried in Massachusetts with some measure of success and should be tried here.

There was very little winter or spring killing this season but more than the usual amount of leaf drop, probably caused by the water not being frozen to bottom as much as usual. I feel that whenever conditions warrant the winter flood water should be held off until freezing weather or a few inches could be put on earlier and when freezing occurs more added and frozen until the vines are covered thus having no water under the ice. One- and-two-year old plants do not usually take leaf drop and it would seem well to hold the water as deep as possible on these to prevent the frost from going into the soil and throwing out the plants. When new plants are frost heaved they should be pushed back as soon as the flood is off in the spring, and should be given plenty of irrigation when hot weather comes.

While this was a cold spring many of the very coldest days were followed by cloudy or windy nights and exceptionally bad frosts did not occur often in the marshes, and when one did occur the growers were mostly vigilant and amply protected their vines.

In springs as cold as this a lot of sleep and possibly some water might be saved by holding the flood on till about May 10. I do not think this would retard the crop. If the weather would turn hot the latter part of April the flood should be taken off. In using this method the water could be drawn a few days in early April for necessary work and to let the algae dry out.

Wisconsin False Blossom, now the manner of its spread is better understood, does not seem quite such a peril. I will cite one instance of attempted control. Mr. S. N. Whittlesey set 12 acres of Howes vines, taking the plants from a field, the vines were two years old, a 48 hour hopper flood was put on without injuring the growing shoots. False Blossom evidently has not spread on that area as none has been found there. One test does not prove very much but such treatment seems the logical thing and I urge all growers to use it where conditions warrant and to make a hopper flood any season when crop loss occurs. In flooding for hoppers the grass should be cut and the water kept on about 20 hours. Oil should be used to kill those that drift ashore. July 10 to 20 is about the right date. If there is False Blossom nearby, flooding the new plantings the first year would be advisable. Two floodings might be wise, the latter part of June and again the middle of July. The middle of July should see the hoppers practically all hatched and egg laying probably does not begin before that time.

Where old fields are badly infested with False Blossom some control may be had by water curing. I would advise the following method. Hold the water on until about July 4 and then reflood for 24 hours 15 days later. The second flood should kill any hoppers hatched after the water was let

off and this treatment should give the vines time to put out fruit buds. Then give a good sanding the following winter. The above treatment was given a field at Mr. Whittlesey's that was badly run out with False Blossom. It has had increased crops since for three years, and many of the hard dead spots have grown over with healthy vines. I do not think water curing would help newly infested areas very much.

In water curing care should be taken to get off as much grass as possible either in the fall or let off in early April and rake. Observations after the water cure flood is let off, sometimes show dead vines where heavy grass is lodged when clean vines nearby are in good condition. This injury might have occurred after the ice melted whether from the sunlight being shut out or from the rotting grass taking up needed oxygen or probably both. Observations in Massachusetts seem to show that leaf drop does not occur in that state after the ice is gone in the spring. This seems to be true here where the vines are reasonably free from grass. Water curing on two year old vines has been tried, but its value for increasing vine growth is doubtful. However, where weeds that can be killed become very thick it might be useful. Sometimes weeds that were not bad before seed in very thick. Water held on to July 4 will kill Blue Joint, Round Rush and some other weeds, but does little harm to Bunch Grass, Slough Grass, Star Grass, Buck Bean, Five Leaf, Willows, Hardhack and many others.

Whenever marshes are flooded care should be taken to rake ashore all floating dirt and leaves because if allowed to sink the air is shut out from the vine roots and a poor growing condition results.

While I do not think heavy rolling should be done often there seems to be some place for it in the Wisconsin Marshes. When planning to resand old heavy long vines where wire grass, blue joint and other weeds are thick, good work may be done by going over the area twice with a heavy roll. Not very much is known about the time to do the work or in what condition the marsh should be. Doing the work about the middle of November will press the vines down and allow the sand to cover many parts that need to become rooted and make an inch of sand look like two where it has not been rolled. This method often thins the grass very noticeably. Rolling twice over and sanding might reduce the crop the first season. Rolling over the same area several times might kill all of the grass and all of the next season's crop, but the vines put up a mass of new uprights while very little of the grass comes back. Where there is a solid stand of grass this procedure might be advisable. I think all marshes will not respond alike to rolling. Vines react to heavy rolling somewhat as they do to water cure. Both induce latent buds to put up shoots from the old stocks near the roots.

I wish to congratulate you on the nice crop you have in view; with better weather conditions during bloom it might have been larger.

Most growers are striving for quicker floodings and what is almost as essential quicker getaways, and wherever fields are being rebuilt they are taken to grade. If we keep up the enthusiasm we are now showing for better marshes before we get larger marshes we will soon be the leading state in per acre production.

DISCUSSION

QUESTION: Mr. Rogers, if you had a cranberry bog and you found the fire worm in two sections, and there were a dozen sections to the bog, would you flood all of the bog?

ANSWER: Well, I think if I wouldn't find much in the other marshes I would flood just those two. Observation would probably tell you that. I think if I found fire worm in my marsh I would burn them off, I wouldn't bother to flood. I would at least burn part of it. My advice is to take the crop before the worms do. If you don't have a complete flooding all of the grass is not carefully covered with water. That is the usual case where we don't have a complete flood. Why I mentioned mowing was because I want to impress upon the growers to have their vines mowed off and have new vines.

QUESTION: You would suggest that after every seven or eight years to mow the marshes?

ANSWER: Many times all of the marshes don't need to be mowed, but I would think it a good thing to mow the Wisconsin marshes. Then when the vines come back in they are shorter and thicker than they were before.

WATER RIGHTS

ADOLPH KANNEBERG

Mr. Chairman, Ladies and Gentlemen: It always seems to me that in order to get the most out of a speaker's paper you should ask questions. I would like to have you stop me at any time and ask me any question that comes to your mind.

As I understand it, the greatest enemy of the cranberry grower is frost and the greatest need is water. It so happens that there is no subject in the laws upon which there is such a confusion of ideas as over the rules of law pertaining to water. I think a few examples will make my meaning clear.

Some people believe that when a person owns land bordering on a navigable lake that his title extends to the middle of the lake and that he may build out and extend his holdings to this point. Again others believe that if a person owns land which completely surrounds a navigable lake any member of the public may as a matter of right cross such privately owned lands in order to gain access to the lake. It has also been claimed that if a riparian builds a pier out into a navigable lake the pier becomes public which the public may use because it rests on the bed of the lake, title to which is in the state. Such is, however, not the case. If you pay taxes on the bed of a lake adjoining your upland, you do not thereby become the owner of the bed. Again if a cranberry grower takes a certain quantity of water from a lake or stream for a successive number of years he does not thereby obtain a prescriptive right. The greatest confusion probably exists in the minds of the public over the question of what is a navigable lake or navigable stream, or, in other words, what is the test which one may apply in order to deter-

mine whether a particular lake or stream is navigable and therefore public, or nonnavigable and therefore private.

In the United States, there have grown up two radically different and antagonistic rules of law pertaining to the rights of the public and of the riparian in the waters of the state. The eastern states and states in the Mississippi Valley have generally adopted the so-called common law doctrine of riparian rights, whereby the owner of land abutting or lying on a navigable lake or stream is accorded certain rights which are different from those belonging to the public generally. One of these rights is to have the water of a stream come to him reasonably undiminished in quantity and unimpaired in quality. Each riparian may, however, make reasonable use of the water for domestic purposes, for the watering of stock and for irrigation, subject, however, to a like reasonable use of other riparians, whether upstream or downstream from him. There are other riparian rights, such as the right to protect the shore land from erosion, the right to build piers, and others. Riparian rights differ somewhat in the states which have adopted the so-called doctrine of riparian rights. The doctrine of prior appropriation adopted with modifications by the states in the semi-arid region of the west and southwest recognizes and protects a prior right of user acquired through priority of appropriation. Any person, whether a riparian or not, who can gain legal access to a stream may take any water out of the stream not already appropriated, lead it to his land, whether in the same or another water shed, and put it to his own use. He will be protected in his right to use the water so long as it is put to a beneficial use.

When you consider that, except for the original thirteen states and Texas, all other states in the Union were formed from territory which belonged to the United States, it seems strange that two radically different rules pertaining to water should have developed in the United States. These rules or laws are difficult to understand, unless you know something about the history of the law and the development and growth of the country. When after the Revolutionary War the thirteen colonies declared their independence, they became independent, sovereign states, and as such each had the right to make their own rules of law pertaining to the rights of the public and of the riparian in the waters of the state, as well as upon other subjects. States which have been formed since, and particularly states which were formed in the Northwest Territory, had the same power to make their own laws pertaining to waters, except only insofar as limited by the Ordinance of 1787.

Before the adoption of the United States Constitution, there was considerable discussion among the colonies as to what was to be done with the territory lying west of the colonies. Virginia claimed what afterward became West Virginia, Connecticut, the greater part of Ohio, Indiana, Illinois, Michigan, Wisconsin and Minnesota. The landless states, notably Maryland, claimed that these lands had been wrested by common endeavor and sacrifice and therefore should belong to the Union. Virginia finally ceded the territory to the United States on two conditions. One was that the states to be formed out of the Northwest Territory were to be sovereign and independent states having the same rights of sovereignty as the original states. The other

condition was that the streams flowing into the Mississippi and the St. Lawrence Rivers and the carrying places between the same were to be forever free public highways. The cession was accepted by Congress on the conditions laid down by Virginia and the conditions were incorporated in the great Ordinance of 1887. Hence, each state, Wisconsin, Indiana, Minnesota and Ohio, was entitled to make its own rules pertaining to the rights which the public and the riparian, respectively, shall have in the waters of the state, except that if the waters are navigable under the test adopted by the state, then they are free, public highways. It is interesting to consider why this condition was imposed by Virginia. I have here a map of the territory of Wisconsin. It is dated 1837. Most of the map shows the territory to be a wilderness. The map indicates which streams are navigable by canoe, the carrying places or portages, waterfalls and other physical characteristics important to the navigator. The streams were practically the only highways in the state at that time. The map was made only fifty years after the territory was ceded to the United States.

When Virginia ceded the territory to the United States there were only three main waterways connecting the Mississippi Valley with the east. One of these was from Lake Erie up the Maumee River and down the Ohio. Another was from Lake Michigan by way of the Chicago River to the Mississippi. The greatest of these waterways was the Wisconsin-Fox waterway. This waterway was extremely important even before the canal was built. One firm employed thirty ox teams to transport the commodities across the narrow neck of land between the Wisconsin River and the Fox River. Virginia ceded the territory a few years before the Constitution was adopted. She feared that the new states might exact a tax for the use of the streams as highways within the territory. She felt that unless the condition was imposed the streams and the carrying places between them would not be free, public highways.

After the adoption of the Constitution, the so-called Commerce Clause prevented the states from imposing any tax on the navigable waters within them. Although the ordinance provides that the navigable waters leading into the Mississippi and the St. Lawrence were to be free, public highways, there is nothing in the ordinance or the Constitution of the United States which defines what are navigable waters. Each state was left to adopt its own test of navigability.

Wisconsin and Oregon adopted the so-called saw-log test of navigability. In these states, any stream which is large enough during the spring freshets to float saw-logs to market is a navigable stream, and being a navigable stream under the Ordinance of 1887, it is a free, public highway.

The test of navigability in different states differs greatly. In some states a stream to be navigable and public must be capable of navigation up and down. In some states, the test is that it must be navigable in the sense of commerce. In the eastern states, the rule has been generally adopted that a stream, in order to be navigable, must be one upon which commerce can be carried on by ocean-going vessels. Louisiana has adopted the test that a stream is navigable upon which for thirty days in each year a steamboat loaded

with 500 bales of cotton can be navigated. Under the rules adopted by the United States, a stream is navigable upon which commerce may be carried on between states.

Wisconsin has probably gone farther than any other state in protecting the rights of the public in her lakes and streams. Wisconsin applies the same test of navigability to small ponds and lakes. A pond or lake of such a size and depth as to be capable of navigation by a fishing boat or hunting skiff, or such other craft as are commonly used upon such pond, is navigable.

In Wisconsin, the public has other rights in navigable water besides the right of navigation, namely the rights to fish, hunt, bathe, navigate for pleasure in any lake or stream which is navigable by the test adopted by the state. Recently the Supreme Court of Wisconsin has declared two small lakes connected by a channel, one covering about $3\frac{1}{2}$ acres, the other $2\frac{1}{2}$ acres, to be navigable and public waters.

In the State of Michigan, rather large lakes are held to be private in the sense that the fisheries belong to the owners of the upland. This has been with respect to a lake which covers more than 100 acres.

Wisconsin has long since realized the importance, especially to the northern part of the state, to have the waters of the state public, so that tourists may come and fish and hunt as a matter of right in these waters. We believe that Wisconsin has preserved more rights to the public in the public waters of the state than has any other state in the Union. It is because of the fact that every state makes its own rules pertaining to the rights of the public and of the riparian in the waters of the state that so much confusion exists in the minds of the public with respect to the law of waters. People coming from other states may be familiar with the rules of law of their native state and attempt to apply them in Wisconsin.

Wisconsin adopted laws pertaining to cranberry culture as early as 1867. These laws are known as Sections 94.26 to 94.35, inclusive. Under the cranberry laws, it is provided that any person owning lands adapted to the growth of cranberries may build and maintain on any land owned by him such dams upon any water course or ditch as shall be necessary for the purpose of flowing such lands, and construct and keep open upon, across and through any lands such drains and ditches as shall be necessary for the purpose of bringing and flooding or draining and carrying off the water from such cranberry growing lands, or for the purpose of irrigation, fertilization and drainage of any other lands owned by such person; provided, that no such dams or ditches shall injure any other dams or ditches theretofore lawfully constructed and maintained for a like purpose by any other person. In other words, the person owning the cranberry lands may construct a ditch across the land of another without his consent and subject only to the payment of damages caused by such ditches or canals as is provided in Section 94.27 of the cranberry laws. The only remedy that the owner of the land has across which the ditches are constructed is to sue for the damage he sustains.

During the last few years, Wisconsin has had a deficiency in annual rainfall. Many of the cranberry growers had insufficient water to irrigate their

fields or to kill the insects which infected the vines. It is because of this deficiency in rainfall and the damage which was caused thereby to lakes and streams, as well as to cranberry growth, that the Public Service Commission sponsored a bill permitting the diversion of surplus water from one water shed to another.

It will be remembered that the common law doctrine of riparian rights adopted by Wisconsin does not permit the diverting of water from one water shed into another. Each riparian owner is entitled to have the water come to him undiminished in quantity and unimpaired in quality, as we have already pointed out, subject to the reasonable use of water as it passes each riparian. The first use of such water is for domestic purposes and irrigation. If the stream is small and there are many persons desiring the use of water, courts, upon application, would divide it equitably among them. The fact that one person has used the water for a long period of time does not give him the right to continue such use, as is the case in the western states under the rule of prior appropriation.

There seem to be many causes for the lowering of lakes in Wisconsin and other states, such as the cutting of the timber, the drying out of swamps and other causes. We are citing an extreme case of lake lowering.

Devils Lake in North Dakota dropped twenty-nine feet since 1869. It was a very large lake. The drainage area is about 4,000 square miles. The rainfall is about the same as it was in 1868. The evaporation of the lake is also about the same as it was then; nevertheless, the lake continued to drop year by year. The cause was explained by Professor Chandler of the University of North Dakota as follows: During the buffalo grass days, the runoff from the drainage area into the lake was about $\frac{1}{2}$ of an inch. After the land was taken up and plowed, the crops—wheat and corn—used more water, so that the runoff instead of being $\frac{1}{2}$ of an inch was only $\frac{1}{10}$ of an inch from the drainage area, a reduction of $\frac{2}{5}$, which caused the lake to lower year by year.

In the northern part of Wisconsin, while the swamps were covered by trees and other thick vegetation, the evaporation in the swamps would not begin until perhaps the latter part of June, whereas after the timber was cut off the evaporation would begin early in the spring, thus leaving less water to supply the lakes during the summer months. The cutting off of the timber also causes the outlets from the swamps to erode, whereby the swamps would hold less water than formerly.

In order to replenish our receding lakes, a bill was drafted and submitted to the Legislature which was passed and is known as Section 31.14, Statutes. This law permits the taking of surplus water from one water shed to another. Surplus water is defined in the statutes as water of a stream which is not being beneficially used. This permits not only the spring runoff to be used for diversion purposes but water during any time of the year which is not being put to any beneficial use. The law authorizes the Public Service Commission to determine in each case how much water may be diverted as surplus water.

Q. When was this act passed? Was it just lately?

A. The act was passed during the 1935 session of the Legislature. The proposed bill was really discussed several years ago and put in final form during the last session of the Legislature. It was submitted to Mr. Theodore Brazeau for his opinion as to its legality. The act is of the utmost importance to the cranberry growers. The amount and quality of water determines to a great extent what importance the cranberry industry will play in the future in Wisconsin.

This is true not only of the cranberry culture but applies to many industries. The Lakeside Power Plant in Milwaukee uses for cooling purposes every 24 hours more water than does the entire City of Milwaukee during the same period.

The paper and pulp industry could not exist were it not for the large quantities of water for power and manufacturing purposes. However, some of our streams have become so polluted that they may not be used for industrial purposes. One of the paper mills was compelled to build a dam across Four Mile Creek, in order to obtain water pure enough to manufacture paper.

The tourist industry in Wisconsin also is promoted by many lakes and streams of pure water.

Q. Does this new law repeal any existing law?

A. It does not. It is a departure in Wisconsin which is entirely new. The law does not work any injury to any land owner because only such water may be diverted which is not being used by any one.

Q. Could you take water from the power companies by force?

A. No. Only surplus water may be diverted. If the water in the stream is being used by a power company, it may not be diverted except with the consent of the power company.

Q. If a person takes water from one water shed into another, does that give him a continuing right if he takes it for several years?

A. No. The water may be diverted only so long as it continues to be surplus water. Water might be diverted for a hundred years and still the person diverting it would not obtain a prescriptive right to continue to do so. As soon as the water in one stream is used by a riparian on that stream, it is no longer surplus water and may no longer be diverted.

Q. Does a strictly artificially dredged ditch come under the term of a navigable stream?

A. We believe that an artificial stream may be navigable in law.

Q. Suppose a group of cranberry growers were in the habit of collecting water in a reservoir and some upper owner got the idea of diverting those waters into another water shed, would that be a question for the Commission to determine?

A. Yes. It would be for the Commission to determine whether the diversion is of surplus water or not. We expect that many questions under the diversion law will arise which the Public Service Commission must decide in the first instance.

MINUTES OF THE FORTY-NINTH ANNUAL MEETING

Meeting was called to order at 2:15 P. M., Tuesday, December 10, 1935 at the Realty Hall, Wisconsin Rapids.

President H. J. Gebhardt addressed the meeting.

Minutes were read and approved. The financial report was read and referred to Guy Nash and C. L. Lewis, appointed auditors, who found the records correct.

Chas. Dempze, Joe Bissig and Henry Kissinger were appointed as a nominating committee.

Motion was made and carried that the same officers remain in office for the ensuing year.

O. O. Potter and C. Treat were appointed to draft resolutions of regret on the passing of S. N. Whittlesey, one of the first growers to settle in the Cranmoor district.

F. Barber and P. Bennett were appointed to draft resolutions of regret on the passing of A. Case of the Tomah-Warrens district.

Moved and seconded that the secretary write a letter of appreciation to our field man, L. M. Rogers, for his work on our problems during the past years, and urging him to carry on with next year's responsibility as our field man as much as health will permit.

Moved and seconded that the secretary cast a unanimous ballot for F. Barber to take the place of the late Whittlesey on the executive committee. Motion carried.

Speakers on the program were: E. L. Chambers, A. U. Chaney and C. M. Chaney of New York City, and V. Goldsworthy.

The meeting adjourned at 4:45 P. M.

At 6:45 P. M. one hundred and eight growers and their friends were seated at the lovely banquet tables in the crystal dining room of the Witter Hotel, with Guy O. Babcock as master of ceremonies. Mr. Daniels very kindly provided the following entertainment: songs and musical numbers by the Clover Leaf Club, Miss Vivian Staven, "Earl and Don," also the Red Fox Orchestra which played for the dance following the banquet.

CLARE S. SMITH,
Secretary.

IN MEMORIAM

WHEREAS, In the death of Archie Case the Cranberry Industry has lost a very enthusiastic, useful individual who was taken at his prime, and at the beginning of the most useful part of his life.

Be It Resolved: That the Wisconsin Cranberry Growers' Association express deepest regrets and extend to the family and associates sincere condolence.

F. R. BARBER,
PHIL BENNETT.

IN MEMORIAM

We regret very much to record the passing of Mr. S. N. Whittlesey, who with his wife, our former worthy secretary, were the real pioneers of this industry. He will long be remembered as a real help and inspiration to his fellow growers and his untiring efforts in co-operative marketing.

Resolved: By this Association that there be spread upon its minutes this resolution which expresses our sense of personal loss at his passing, and appreciation of his services and integrity, and be it further

Resolved: That his relatives be furnished with a copy of the same.

O. O. POTTER,
C. R. TREAT.

ADDRESS

MR. GEBHARDT, *President*

It gives me great pleasure to meet you this afternoon. Gathered here, today, are those who produce the much desired Wisconsin cranberries. The general feeling certainly indicates that the 1935 season has been a favorable one with you, and it is with regret that we view the many years in which millions are in need of the necessities of life when the seasons have been favorable.

Wisconsin growers can be greatly encouraged over the outlook for the future of the cranberry industry. Your confidence is in the future for the indications point to a growing popularity for the fruit; the extreme limitation of the areas where it can be grown and the increased cultural knowledge would seem to insure a successful future for the industry if the best of business like methods are pursued.

This meat eating nation is rapidly changing to a diet consisting of fruit, vegetables and nuts. When we ponder over an effect, it is well to look for the cause. Why this change from a meat eating nation to the now more popular fruit, vegetables and nuts? Undoubtedly the ease with which the products of the semi-tropical areas are quickly moved to northern markets over highways and other means of transportation contribute much to this change. Citrus fruit arrive in bulk direct from the groves and a commodity that can be produced cheaply in one locality should move with the least possible resistance to where needed.

This year Wisconsin produced one of its large crops, and it would be well for growers to study to see whether their crops were the results of applying the knowledge gathered from time to time or whether it was due to favorable weather conditions. The cranberry aggravations today are more easily solved than when confronted with the same problems in the past. Our field man is always ready to assist us. The increased knowledge simplifies to a great degree.

In preparing for the coming years we can surely look for trying seasons and conditions. We will have our frosts, droughts, hail, flood and insect pests. Frequently these come by the wagon box full. I feel the fruit worm does far more damage than we are inclined to believe, and being rather quiet for several years we can look for an invasion of this pest when least expected. It has been said that "worry is interest on trouble before it comes due." Nevertheless in due time these problems come to us and we should be on the alert and prepared to meet them.

The Association is always glad to have visitors meet with us and to them and all I extend a hearty welcome.

CONTRIBUTING FACTORS FOR A SUCCESSFUL CRANBERRY CROP

E. L. CHAMBERS

Mr. Chairman and Members of the Cranberry Growers' Association: I certainly am glad to have this privilege of being with you today and of

being able to congratulate you again after another successful season. It does one good after working under reduced budgets in Madison and using relief labor to accomplish much of our work, to mingle with a group who are enjoying a little prosperity. There are just two things which make a horticultural group like this feel good and they are, a big crop and a good price. You have them both.

Coming up this morning I noticed on one of the large roadside signs put up by the California English Walnut producers, this phrase, "Bumper Crop—Reduced Prices." I immediately associated you cranberry growers with the bumper crop and I am glad that you got bumper prices along with the bumper crop. Having close contact with the other horticultural groups less fortunate this year and having attended your own meetings when this picture looked different, I am pleased to find your industry getting some of the breaks you have had coming to you for a long time.

Gambling with weather conditions over which you have no control, and threatened by insect pests and diseases which require a constant vigil, you have been rewarded for your efforts by another successful season. Some of the credit is due to one factor and some to another but they all have contributed to your success.

Your insect and disease specialists, Mr. Rogers and Mr. Bain, have, no doubt, made an important contribution in the way of eliminating heavy losses from pests and storage diseases on quite a number of your bogs. With cranberries at \$20.00 a barrel, how would you like to have added to your bank account that five or ten per cent that the insects take annually despite your efforts to stamp out incipient outbreaks? This normal annual tax taken from your crop by insect pests would amount to between four and eight thousand barrels and would mean four or five thousand dollars in your pocketbooks.

I talked a few days ago with the head of our radio station WHA who has just returned from England where he has been studying the English system of broadcasting. He told me that the two things that struck him most forcibly were the innumerable smoke stacks on the roofs of houses and buildings everywhere pouring out their ribbons of black smoke, and the poor food that was served in their hotels and restaurants. He said he inquired of an English broadcasting official, who had just recently visited America, what his reactions were with regard to our country and the man replied that the two things that stood out in his mind were that the children in America were allowed to play ball and other games everywhere on our heavily traveled streets, and that everyone seemed to be constantly chewing gum. This latter observation he attributed to the result of effective advertising that he noticed on all of our radio programs, on sign boards, signs in our street cars and trains, and large advertisements in all of our magazines.

Advertising is the thing that made possible the sale of your bumper crop at top prices this year when there was a surplus of all kinds of other fruit selling at low prices. Mr. Chaney and his co-workers are to be congratulated on their efficient methods of creating a demand for your products. Some folks are born with natural food prejudices and some of us develop them as

we grow up. It takes effective advertising to tear down such prejudices. The English people are considered a little more prejudiced along these lines than are other nationalities and they are likewise accused of being very slow to adopt new ideas, and they have not yet learned to relish cranberries. It took them years to learn to like our grapefruit. When these Englishmen become exposed to a little of our radio advertising while tuning in on some of our powerful stations, there may be created a big market for many of our products, including cranberries, eventually over in England. We know that when they once get a taste of Wisconsin cranberries prepared in some of the appetizing ways that we now enjoy, they will wonder why they have been deprived of the pleasure of eating cranberries all these years. We have in Wisconsin a lot of suitable land for the development of cranberry bogs and so long as the price can be maintained at anywhere near the level of the past two years and we can control the pests, there will be an incentive to increase the acreage.

Speaking of overcoming prejudices, it was interesting to note in this connection the case of the Irish potato, now a staple food known the world over, which England and France were slow to accept as a part of their diet. The Irish learned to eat them because of necessity during the famine years in Ireland and now would not know what to do without them. The Scotch did not eat them because they were not mentioned in the Bible but when times got hard, they decided to eat them anyway and they, too, are big potato consumers today. The French had an unusual method of introducing the product. After many years of unsuccessful attempts to interest people in this vegetable, a clever French official, with an understanding of psychology, utilized a large tract of land near the castle, used only a few weeks out of the year for military practices, for planting a crop of potatoes. The people living in that vicinity watched the crop grow with much interest and when the potatoes were being harvested, a five-fold bumper crop attracted unusual attention. By maintaining a heavy guard during the day to keep the crowds back while they were digging the potatoes and then by taking off the guards at night, the government succeeded in having a large part of this crop stolen, and the French people as a result developed a taste for the new product and France today is a big consumer of potatoes. If our English friends across the big pond had a chance to taste some of the delicious cranberry dishes concocted by our domestic science department, instead of being allowed to prepare their own dishes and spoil the food, as they have a reputation for doing, perhaps they would soon develop a liking for Wisconsin cranberries.

Our insect enemies, as well as our human population, have certain likes and dislikes and it is the ambition of our scientists to select strains of plants that are least attractive to their enemies. The McFarland and Early Black varieties are considered, I believe, as being two of the heaviest yielding cranberries and these are not in the privileged list of the blunt-nosed leaf hopper, which transmits the false blossom and other serious pests. The number of dollars that can be gotten from an acre of cranberries is what counts, we are told, and it may be that a scant yielder of a high quality berry will bring in money and continue to escape false blossom and other pests longer than

some of the heavier yielders that are more subject to pest attack. Our insect enemies, as I have pointed out previously, have been on this earth a long time and at least fifty million years longer than man, so they have pretty well made up their minds as to just what plants they prefer. It takes fifty or sixty years before an introduced plant can be made popular enough to be generally adopted. My observations with children's likes and dislikes for food are that they will never like certain food unless they are compelled to eat it for a while. Food that children do not have frequent access to or foods that parents eat and do not offer to them, are most attractive to them. Some insects change their tastes and after years of feeding on one plant suddenly decide to adopt another when they have an opportunity to taste a new one. The Colorado potato beetle, for instance, gave up the Buffalo burr and took up the Irish potato when it appeared in sufficient quantities to encourage it, and the strawberry root worm likewise left the strawberry and became a serious pest to greenhouse roses. Maybe we can find substitute plants even if they have to be weeds which will be preferred by our leaf hoppers, fruit worms and leaf miners. We know that the brown bush is relished by the blunt-nosed leaf hoppers, making the presence of this bush in large numbers near cranberry vines a menace as a breeding grounds for this insect, and yet we find that marshes in which this bush grows make the best location for cranberry growing.

Civilization has not always benefited our animals and plants. Breeding to develop certain qualities of color and size, has frequently been done at the expense of sturdiness. In the wild state, many plants appear to suffer relatively little injury from insect attack as compared with their cultivated relatives. They appear to have acquired through many thousands of generations, a degree of tolerance to such attacks whereas cultivated varieties of these same plants suffer severely from repeated infestations. These differences are supposed to be due to the conditions under which the cultivated varieties are grown which favor infestation and to certain properties inherent in their wild state which have been outbred. They become more attractive to insects and less able to withstand attack. Absolute pest-resistant varieties are a great rarity and in most cases have simply a low degree of susceptibility to insect attack. The apparent resistance of the McFarland and Early Black cranberries, it seems, is due to the feeding preferences of the leaf hopper which carries the false blossom. When buying or eating vegetables one wonders where this or that plant came from and why we eat celery, potatoes, radishes, beets and spinach instead of hundreds of other available plants. If we investigate and see some of the wild ancestors these plants were developed from, we wonder even more. Our ancestors across the pond never tasted string beans, lima beans, sweet or Irish potatoes, corn, pumpkin, squash, peppers or tomatoes, until America was discovered. The cabbage tribe on the other hand and the cresses, turnips, carrots, and beets are all immigrants to this country like ourselves. These plants being exchanged the world over, naturally carried with them their pests and this pest distribution was another price of civilization.

Some types of fungi are necessary to be associated with higher plants for their successful existence. The cobweb-like growth of certain fungi about

the roots of other plants make food available to them, as in the case of poplars, willows, beeches, evergreens, heath and orchids. The absence of these organisms in the soil or their failure to be moved with the plant is responsible for their refusal to grow properly, if at all, after transplanted.

Some of our pests were, of course, moved around long distances with their host plants by the glaciers. A neighbor of mine, disgusted with the problems of trying to grow a garden in competition with drought and insect enemies, recently said, "What's the use?" explaining that she had heard over the radio that another glacier was moving south and it would be only a matter of time before we were all shoved off the earth anyhow. The last glacier moved about 150 miles in 8,000 years so I assured her that we would not have any need for worry about the next glacier.

The present aeroplane traffic, on the other hand, makes it possible for plant pests to move long distances within a few hours as with planes operated between the Orient and Tropics to points in Florida. This aeroplane problem has complicated the problem of pest control. Last year, as a member of the National Plant Board, I had an opportunity to study the problem of certification and adequate checking on this source of spreading new pests for the Pan-American airways at Miami, Florida. With planes coming in every hour or two from Panama, Mexico and other points we used to consider as isolated, and the passengers carrying fruits and vegetables, very ideal conditions were afforded for the importation of new pests on fruits. Species of mosquitoes capable of carrying malaria and yellow fever could have easily been carried by these planes which would make it possible to cause an outbreak of these diseases providing the mosquitoes had been exposed to the disease.

Since 1912, when the wholesale dumping of agricultural products, with their pests from all points of the world was finally checked for the first time, twenty foreign quarantines have been promulgated restricting the movement of plants so that the danger of introduction of new pests has largely been eliminated. We have enough pests to contend with now when we stop to consider that the majority of our most serious economic ones are of foreign origin. The government still has its agents searching for new plant material which may serve as food or other useful purposes in other parts of the world, but now under careful inspection, this work can be carried on with little risk of introducing new pests.

The question of the value of bees to cranberry products as compared with other horticultural crops, is one frequently raised. Since the pollen of the cranberry is too heavy, the botanists claim, to be wind blown, the success of a cranberry crop depends upon certain insects for pollinization. We cannot look upon all insects, therefore, as being injurious to the cranberry grower. The value of the honey bee in pollinization of cucumbers, tomatoes and apples, has been pretty well appreciated and its help recognized as an absolute necessity. Honey bees used in tests in New Jersey under cages, showed a difference in the setting of fruit of between eight per cent and fifty-six per cent without and with bees. Maybe in years when the bumble bee and other wild bees are scarce, we should have our crops guaranteed with an

adequate supply of honey bees on the bogs to do the necessary pollinization. Bumble bees are usually scarce following dry seasons apparently because the field mice are able to increase in larger numbers under such conditions and thus destroy the over-wintering queen bumble bee. There has been a lot of speculation concerning the reason for a light crop in 1928 when all conditions had looked favorable for a big crop, and it may have been a lack of pollinization resulting from the cold unfavorable weather during blossoming time that kept the bees and other insects from doing their part. When we have had a year with a good crop and fine prices, we hate to discuss the years when we have not been so fortunate, but just when it is wise in the time of plenty to store up for the time of scarcity, so it is that we consider the factors responsible for our success or failure over a period of years in order to heed them for the future.

Dr. Franklin in his experimental work in Massachusetts, you will recall, has shown by some of his data that the failure of bogs or parts of bogs may be attributed to the inability or lack of bees to work the blossoms while the vines are in bloom. It has been shown that the inability of bees to visit these bogs was due to climatic conditions, the prevalence of winds or coldness in that part of the bog.

The motto of our state is "Forward" and we should strive to follow this motto by always looking forward, but yet we should not completely forget the past. Over in Australia they have what is known as a "Doozer bird" which always flies backwards because, as they say over there, it wants to see where it has been. It might be wise for our cranberry growers to keep their chins up and look both ways and profit from the experiences of the past, striving to avoid repeating any mistakes that have been made, and with another big crop with good prices for next year as your goal, may you weather the storm again in 1936.

REVIEW OF THE 1935 SEASON

VERNON GOLDSWORTHY

Wisconsin has had the second largest crop it has had in the history of the state. This large crop has all been sold at a very fine price, so naturally all Wisconsin growers are in a happy frame of mind. Having disposed of this year's crop, we began to look forward to next year's crop prospects. Taking the state as a whole, the budding looks very good, in fact, just as good as last year if not better. This, of course, does not mean that Wisconsin will again have a bumper crop next year, because there are so many things that may enter into the picture that can destroy part of this crop prospect.

A factor that Wisconsin growers are going to have to consider more than they have is the increase of fireworm in the state. During the dry years and with the severe winter killing, fireworm was kept pretty well under control by natural conditions. Now, however, with plenty of water to flood the marshes, the fireworm will increase because it is protected through the winter. I noted in my travels this summer through the various marshes in the state a gradual increase in the number of fireworm over that of last

year. The growers having fireworm should plan to flood for it next year or else in a year or two it will build up so fast it will cause extensive damage. Fireworm has in the past, destroyed many thousands of barrels of berries in Wisconsin and will do so again unless controlled. With our knowledge of flooding and the life cycle of the fireworm there seems to be little need for worry about it if we use the proper control methods.

Fruit worm in Wisconsin does not seem to have been any worse last year than it has for several years. This is our most difficult insect to control, and to date there are practically no known control methods for the cranberry fruit worm. Two years ago we released some *Trichagaama* parasites from the Pacific Coast on a marsh which we knew contained a great deal of fruit worm. The results of this test were very difficult to determine and at the present time it is doubtful to say that any beneficial results were gained.

There is an increase in Wisconsin of the leaf hopper that spreads cranberry false blossom. This insect, too, has undoubtedly been aided by the heavy protective snows of last year. It, too, may increase to alarming proportions. On several of the marshes spraying has been carried out with definite success and apparently it will be only a question of time when more spraying will be done. In cases of those who cannot spray, dusting will undoubtedly be practiced.

Cranberry false blossom has been increasing on some marshes in Wisconsin at a very fast rate. On others, of course where the leaf hopper is not present in large quantities the spread has been very small, in fact it is difficult to note. Also on many old sections which have considerable false blossoms in them it is practically impossible to tell whether the disease is spreading very fast or not. We all know, of course, that any diseases or any trouble which interferes with proper functions of the plant will cut down the production. On new plantings the grower should by all means flood during the latter part of June or early July. A 24 hour flood at this time on a young planting, under the correct weather conditions will give 100% control of the leaf hopper, but will not do any injury to the plants.

Another factor to keep in mind is that the brown bush around the edge of sections or on the dykes should be destroyed as this is a breeding ground for the cranberry leaf hopper. The leaf hopper that spreads cranberry false blossoms lives on only two plants, the cranberry plant and the brown bush. If the brown bush plants are destroyed and control methods practiced on the marsh, there is no reason why almost 100% control could not be gained. False blossom is making inroads on Wisconsin marshes slowly and surely, but to the grower who sees his marsh every day, it is difficult to determine its spread.

Wisconsin will again go ahead and do some planting in 1936. Apparently there will be about 100 acres of new vines planted. Varieties planted will be Searls Jumbos, McFarlins, Howes, and possibly a very few acres of Natives. In planting, be sure that if you buy vines, they have been passed by the state and are disease free. If your vines are not disease free you may easily waste your entire effort by planting poor vines.

The general conditions of the marshes in Wisconsin have improved a very great deal within the last few years. The clipper has done much to improve Wisconsin marshes. With the increased crops and better prices, growers have also had more money to spend for weeding and this fact is very much in evidence in looking over the various marshes. I think at the present time the Wisconsin marshes are in better condition than they have ever been since I can remember them. Growers are doing more in the way of cultural control, insect control, and general improvements on the marshes than they ever have done before. This will make for increased production and is to be encouraged as the results will pay for the efforts many times. Conditions have not only improved on the marshes but have also improved in the packing houses. A number of new mills have been purchased this year and about 20 new mills may be purchased next year. New systems of lighting to enable sorters to work better and more efficiently have been installed. Some growers have painted the inside of their sorting rooms white, an excellent idea. Conveyors are being used on two marshes now, and in general the conditions of the warehouses have been improved.

To me it seems that Wisconsin is definitely headed for a bright future in the cranberry business. We are climbing steadily in production every year and it is not going to be long before we reach crops of 100,000 barrels or more. We will soon easily pass New Jersey every year in production and not occasionally as we are doing now. There is still much available land in Wisconsin which may be developed into commercial cranberry marshes and it will be merely a question of time when this additional acreage will be developed.

DISPOSITION OF THE 1935 CROP

A. U. CHANEY

Mr. Chairman and Friends: I talked quite a lot at the Sales Company Meeting, and I hope the Sales Company members who may be here will pardon any repetition that I make in the few words I would say to you this afternoon.

It is apparent that Wisconsin produced about 20,000 barrels more berries this year than last season. Perhaps this is largely due to the good care you have given to your bogs and the good quality production you have been able to secure and preserve. The season also has proved a favorable one for producing good quality of cranberries in this state as well as the other states. The quality of the Wisconsin crop was unusually good this season.

Canning of cranberries is developing very rapidly, and the canners have used a large amount of berries this season, and will probably continue to use more and more cranberries as the years go by. This is fortunate for the reason that it permits the use of cranberries that are the least attractive for the fresh market and yet make excellent sauce when canned, and leaves more room for the better quality of fruit to be sold in the fresh state, insuring its bringing better prices in consequence.

During this last season most of the cranberries that were not up to a high standard of quality and appearance to be sold in the fresh state went to the

canners. In fact the canners have enjoyed a large demand for their sauce and juice, and we have likewise enjoyed a very splendid demand for fresh berries.

The comparative cheapness of the canned sauce ready to serve has been quite a factor in increasing the demand for that article. Also the fact that the canners have been putting out an excellent quality of sauce ready to serve has been very important.

It is our opinion that 75,000 to 100,000 barrels of this crop have gone into cans and been sold by commercial canners. Whether or not all of this will be consumed this season is a question to be answered later.

Of your crop we shipped back to the Eastern canners 10 cars of Wisconsin hail marked berries. These were perfectly good berries for canning, and would make excellent sauce, but were entirely unsuitable to sell on the fresh market because of their scarred appearance. The canners paid around \$8.00 per barrel for these, F. O. B. Wisconsin, a most excellent price.

Another reason for the rapid increase in the demand for the canned sauce is the fact that the fresh goods are high, being retailed at 15c to 20c per pound, whereas canned sauce is selling at around 15c per can.

The development of this canned sauce took a big jump forward in the season 1934 by the fact that the fresh goods were very high and the canners had been able to carry over in the freezers quite a quantity of berries that were bought very cheap during the season of 1933. This gave those canners who had so anticipated their wants a goodly supply of very cheap fruit, which made excellent sauce. The low retail price of canned sauce in 1934, compared with the very high retail price of the fresh fruit, and the good quality of the canned fruit, at once introduced to the public the canned sauce in an emphasized way. I count this a very fortunate development for the cranberry industry. The canners can take hail marked or scarred berries that make excellent sauce when cooked, but which are very unattractive when offered for sale in the fresh state, and remove these undesirable appearing berries from the fresh market, which enables us to put on the fresh market at all times attractive fruit that appeals to the eye, and effectively increases the consumption of the fresh fruit, as well as the demand for the canned fruit.

In addition to the demand for canned fruit I estimate that there will be nearly 5000 barrels of cranberries used by commercial canners for the manufacture of cranberry juice this year.

Advertising: I am still strongly sold to the advantage of continuous advertising, and I believe that were it not for the cumulative effect of the advertising we have done for the many previous seasons, as well as the advertising we did this season, we would not be enjoying the excellent prices that you enjoyed this year. This advertising helps greatly in creating the desire for berries in the mind of the consumer, and on that we are very dependent. Certainly the advertising this season has been very effective.

Cooperative Advertising: Because of the many other things that we used in our new cookbook in connection with cranberries, we have received a great deal of reciprocal cooperative advertising from the meat people, manufacturers of gelatin, tapioca, sugar and many other things. For instance, Swift

& Co. have been distributing to the dealers a large window display card featuring baked ham with cranberries. The orange people have been featuring the Cranberry Orange Relish, and the Jello people and Knox's Gelatin have been advertising cranberries in connection with their commodity, and General Foods have done it on Tapioca, etc., etc.

Continuous advertising is in my opinion one of the best investments a cranberry grower can make.

TIMELY COMMENT

C. M. CHANEY

Mr. Chairman, Ladies and Gentlemen: I think I said about all I had to say this morning at our Sales Company meeting, but I will repeat some of it for the benefit of those who were not there.

I think the Wisconsin growers received a very fair price for their 1935 crop of cranberries. Some were unfortunate enough to have considerable hail damage but even those were sold at what I consider a good price, mostly to canners.

The canning of cranberries has made considerable strides in recent years, and I frankly admit beyond my own expectations and predictions. One reason for this is the improved quality of the canned product. Furthermore, the low prices at which the canners were able to buy their supply of fresh cranberries from the 1933 crop and carry them over to sell during the 1934 season gave them a wonderful opportunity to introduce the canned product by way of price appeal. However, I wish to point out that the canned product is not always as cheap as it sounds, in comparison with the fresh cranberries. You know one quart or one pound of fresh cranberries with the sugar and water added will turn out $2\frac{1}{4}$ to $2\frac{1}{2}$ pounds of sauce. This is something that the consumer is liable to overlook in comparing prices on fresh cranberries and the canned product.

I do feel, however, that the canning of cranberries is going to continue to be of considerable advantage to the industry, which, of course, means to the growers. Nevertheless I feel that the majority of the consumers of this country are going to continue to want the fresh cranberries when they are obtainable.

The average quality of the Wisconsin and Massachusetts berries this past season was exceptionally good. Out of all the cranberries that we shipped from Massachusetts and New Jersey through the Sales Company this past season there were practically no non-Eatmor grades. As you are aware, our New England and New Jersey companies are under contract with the canners to turn over to them approximately 10% of their total production, so this left these companies to sell through the Exchange practically nothing but Eatmor grade.

I was rather amused at the story of how potatoes were introduced in France. As some of you know, we have been trying to introduce cranberries in England, but up to the present time have not met with very much success.

My first trip over there was in 1913, and one of the dealers told me a story about how our good friend Mr. Rider of New Jersey, now deceased, endeavored to introduce cranberries in London, when he was over there many years ago, I think it was about 1895. He said that one morning he nailed up a nice crate of cranberries and told the porter at the store to take it up to Queen Victoria. The porter started on his way to Buckingham Palace, but he did not get very far toward actually making the delivery, as he very soon found himself and the crate of cranberries out in the middle of the street, outside of the Palace. There are approximately 48 million people in the British Isles, and if we could once get them educated to eat cranberries you can well imagine what a help it would be. The average consumption of cranberries you understand even in the United States is not very high, but if the per capita consumption in the British Isles was one-quarter what it is in the United States, it would help a lot. The English people just don't seem to take to them, but we are in hopes that some day they may learn to like them. They speak of cranberries as being sour, but at the same time they have taken hold of and in recent years become heavy consumers of grapefruit, and we all know that grapefruit is not considered sweet.

I do not think there is anything more that I can say to you that would be of material interest. I certainly congratulate the Wisconsin growers both on the size and quality of their crop and their having been able to ship it out while in good condition. By reason of the good quality for the past few years the Wisconsin cranberries are in good favor with the trade in the territory where they are normally distributed, and I hope and have reason to believe that these conditions will continue to prevail.

**FINANCIAL STATEMENT OF THE WISCONSIN CRANBERRY
GROWERS' ASSOCIATION AS OF DECEMBER 1, 1935**

Jan. 1		Balance on hand -----	\$ 39.34	
Jan. 2		Dues -----	4.80	
Jan. 25		Dues -----	12.75	
Mar. 25	Check No. 148	H. J. Rahmlow, 40 subs. to Horticulture -----		\$ 16.00
Aug. 12	Check No. 149	A. C. Rockwood, 200 stamps, 105 cards, 24 envelopes -----		4.03
Aug. 20		Dues -----	27.75	
Aug. 21		Dues -----	29.45	
Sept. 25	Check No. 150	Lucille Wirtz, reporting Aug. meeting -----		3.50
Nov. 23		Dues -----	12.55	
Dec. 3	Check No. 151	Jos. Wheir, P. M., 100 double post cards ----		2.00
Dec. 3	Check No. 152	C. S. Smith, salary ----		70.00
Dec. 9		Bank Account Expense--		2.47
Dec. 9		Dues -----	14.00	
Dec. 10		Dues -----	6.00	
Dec. 11		Dues -----	36.45	
Dec. 11	Check No. 153	C. S. Smith, for Whittle- sey memo. -----		3.00
Dec. 24	Check No. 154	Lucille Wirtz, reporting December meeting ----		3.75
Dec. 24		Check charge-----		.23
		Total Receipts -----	\$183.09	
		Total Expenditures ----	104.98	\$104.98
Dec. 31		Balance on hand Decem- ber 31, 1935 -----	\$ 78.11	

OFFICERS FOR THE YEAR 1936

President—Herman J. Gebhardt, Black River Falls.

Vice President—Geo. Bennett, Warrens.

Treasurer and Secretary—Clare S. Smith, Wisconsin Rapids.

Executive Committee—Mrs. A. C. Otto, Wisconsin Rapids, F. R. Barber,
Warrens.

