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Wisconsin State Cranberry Growers Association
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WISCONSIN STATE CRANBERRY GROWERS' ASSOCIATION

THIRTY-NINTH ANNUAL MEETING

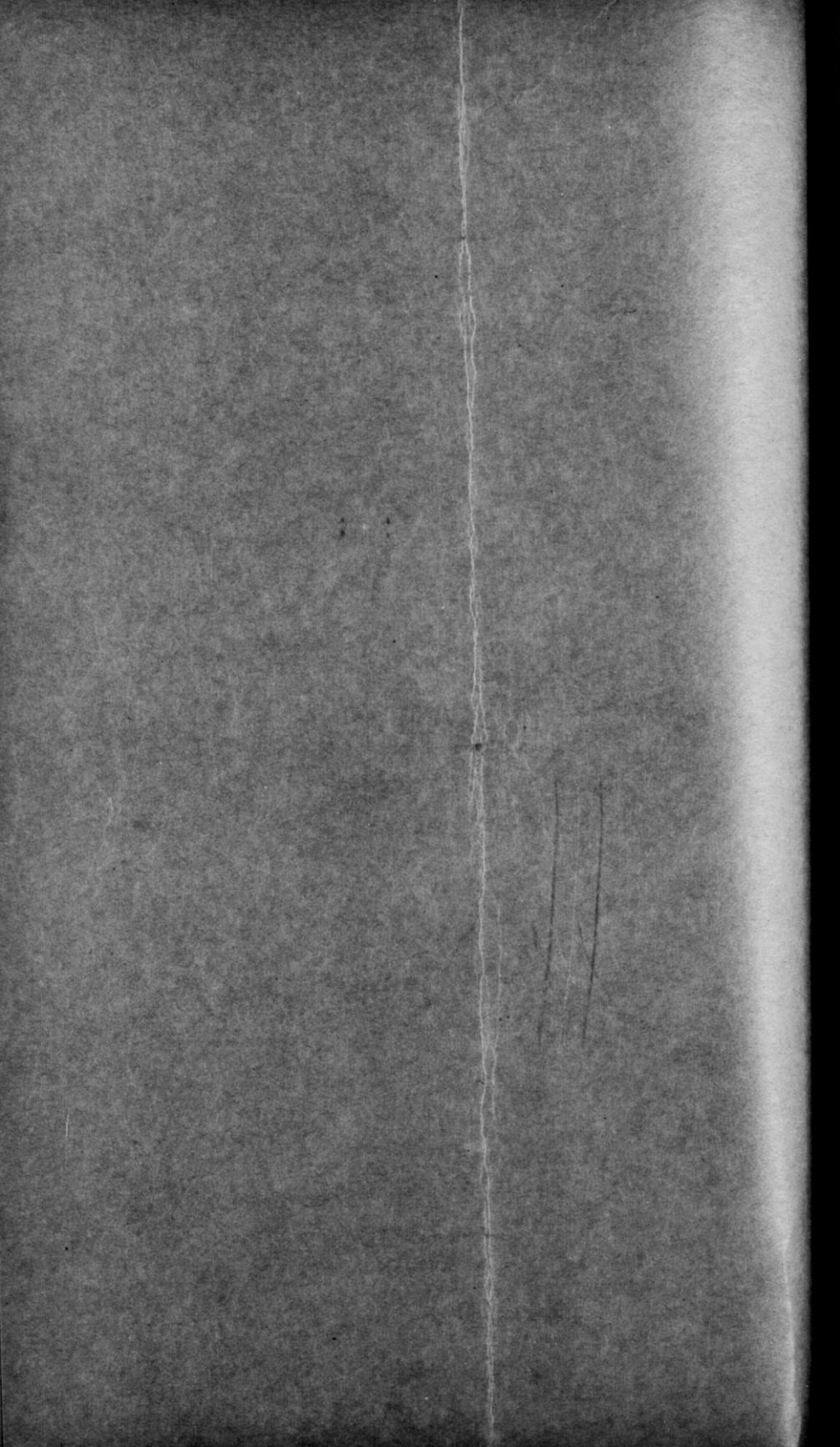
Wisconsin Rapids, Wisconsin

December 9, 1925

THIRTY-NINTH SUMMER CONVENTION

Wisconsin Rapids, Wisconsin

August 11, 1925



WISCONSIN STATE CRANBERRY GROWERS' ASSOCIATION

THIRTY-NINTH ANNUAL MEETING

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DENOCAT PRINTING COMPANY
MADISON, WISCONSIN

LETTER OF TRANSMITTAL

TO THE HONORABLE JOHN J. BLAINE,

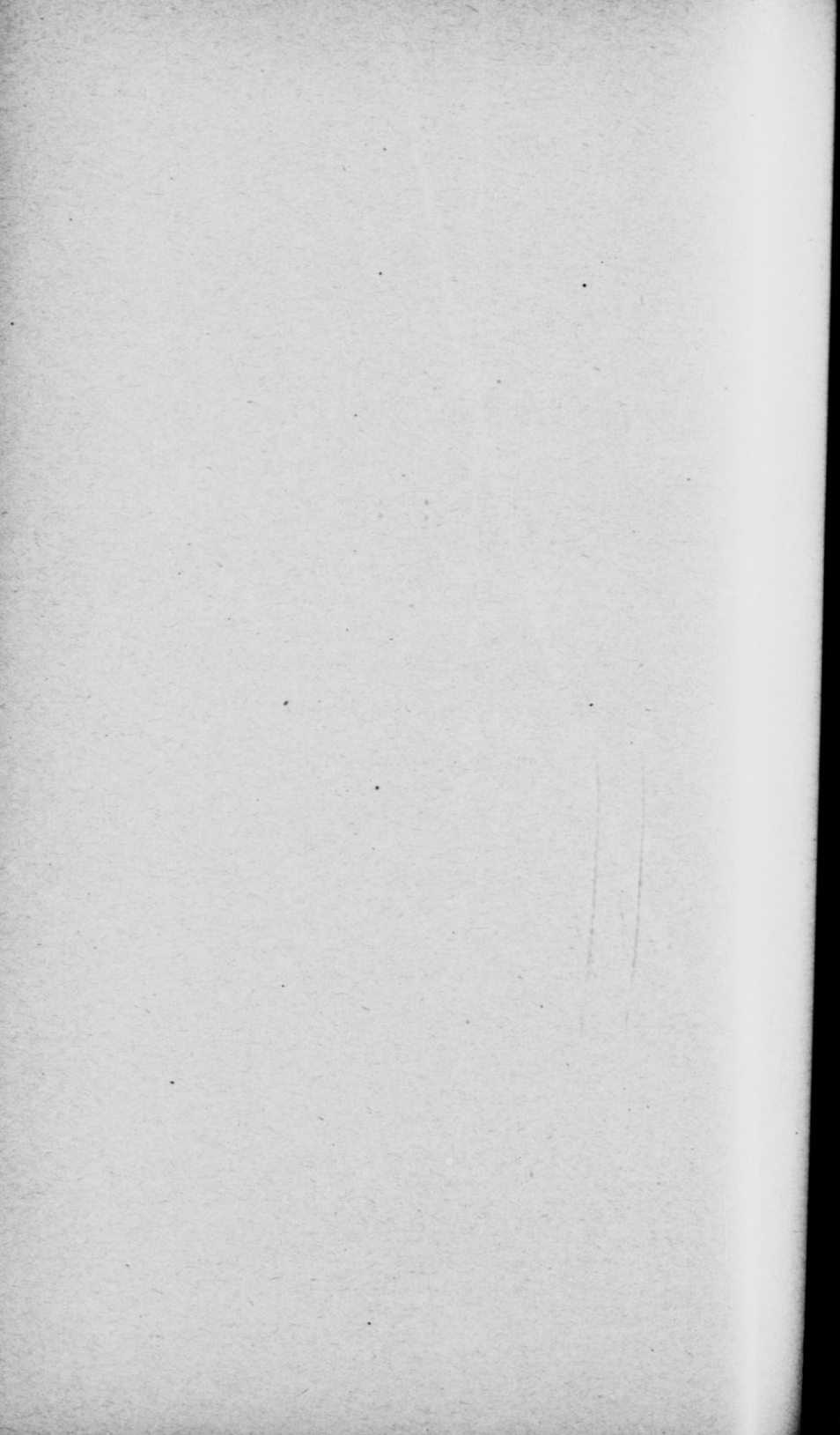
Governor of Wisconsin.

Dear Sir: I have the honor to submit herewith the Thirty-Ninth Annual Report of the Wisconsin State Cranberry Growers' Association for the year 1925.

Very respectfully yours,

CLARE S. SMITH *Secretary.*

Wisconsin Rapids, Wis., Jan. 1, 1926.



MINUTES OF THE 39TH SUMMER MEETING

Witter Hotel, Wisconsin Rapids, Wisconsin,
August 11, 1925.

Meeting called to order by Vice President Guy Nash, at 11 A. M.
Minutes of January Meeting read and approved.

Financial Report read. K. B. Colton, H. Gebhart and Vere Johnson appointed on Auditing Committee, and found same correct.

Moved and seconded that the above report be accepted.

Letters from Mr. Cox, Dr. Fracker and Mr. Jones were read.

Prof. Wm. Sawyer of Lewiston, Maine, gave a splendid talk on his observations of Wisconsin bogs, blight and its possible causes, also many valuable suggestions.

Discussions followed.

Meeting adjourned to 1:30 P. M.

Meeting called to order 1:30 P. M.

Pres. C. L. Lewis addressed the meeting.

Mr. A. U. Chaney of New York gave a brief report on the crop and market conditions.

Committee appointed to draft resolutions of regret at the death of deceased members were as follows: F. Barber and Mr. O. Potter for Mr. Geo. Gebhart; Mr. A. E. Bennett; Mr. Andrew Bissig for H. R. Laing; Mr. A. B. Scott and Mr. F. Barber for Mr. Habelman and Mr. Purviance.

Valuable topics were presented by Mr. Guy Potter of Wyeville and Mr. K. B. Colton of Spring Brook, on Bog Construction.

Mr. P. O. Nyhus, Agricultural Statistician, urged growers to please respond promptly to requests sent out for crop estimates.

Moved and seconded that President appoint a temporary committee to act with the new Field man; one member from each district, in case a field man is appointed before our Winter Meeting at which time a permanent committee will be appointed. Mr. Scott as Chairman, K. B. Colton, Herman Gebhart and A. E. Bennett appointed on aforementioned Committee.

It was voted to hold our next winter meeting the second Wednesday in December of this year.

Motion made and seconded that Meeting be adjourned.

CLARE S. SMITH, *Secretary.*

ADDRESS

PRES. C. L. LEWIS, JR., Beaver Brook, Wis.

The outstanding feature of the present season is the unusually heavy blight that has occurred generally in Wisconsin this year.

Until a month ago growers were quite optimistic over the crop prospect but it now appears that the majority of the bogs in the state have blighted very heavily, from 50 to 75 per cent and even more in some cases. Therefore this question of blight is uppermost in our minds and we shall endeavor today to bring out all possible knowledge relative to the causes and preventatives of what we call blight.

Blight, as we term it, is merely the failure of the bloom to set fruit. Blight as commonly applied to other growing plants indicates a fungus disease which is generally prevented by spraying, but as used in the cranberry industry blight does not refer to a diseased condition.

Perhaps some of you remember one of Dr. Shears' visits to one of our summer meetings held at Cranmoor. It was at the time of this visit that Wisconsin was suffering from an unusually heavy blight and as it is today this problem of blight was widely discussed. We were of the opinion at that time that our blight was a fungus disease but investigations by Dr. Shear failed to reveal a diseased condition and since that time we have had many theories as to the causes and preventatives of blight.

The amount of blight this year is the most serious since that year of Dr. Shears' visit. Just as necessity is the mother of invention so is adversity the incentive for investigation and so we hope to discover something tangible on this puzzling question as a result of our discussions today.

Causes of blight that we frequently hear discussed are lack of pollination or fertility, excessive heat or moisture, cold weather, insufficient moisture, lack of plant food, improper handling of water and weakened condition of plants. Undoubtedly the heavy blight this year is due to one or more of these causes. But we cannot put our finger on any definite cause with any degree of certainty. It will afford a nice problem for our new field man when he takes up his duties among us.

In connection with the subject of field man, you are aware that our appropriation measure was passed. The appointment is to be made by the State Department of Agriculture and applications are now being considered for the position. It is a great satisfaction to us to know that our campaign started about 4 years ago with our questionnaires, has finally brought results and it shows us what real cooperation among us can accomplish. I wish to suggest to the members of the Association that we have a committee of growers available to assist and cooperate with our field man when he takes up his

duties March 1. We might call it a Research Committee as they do in New Jersey or you may have some better name to suggest. Such a committee has been found very effective and valuable in both New Jersey and Massachusetts.

One point that has been mentioned at other meetings that might well be emphasized today is in connection with the steadily decreasing water supplies in the cranberry regions of the state. Recent years have proven that much land unsuited to Agriculture has been drained for farm purposes. This condition has been further aggravated by the falling off in rainfall in recent years and by the general agricultural depression. It has effected us directly by tapping or lowering our ground water and reducing the moisture content of our bogs and the amount of water in our reservoirs. Where ten years ago the sentiment of the country was strongly pro-drainage, we now have a strong anti-drainage sentiment. It is a very opportune time to change laws that are detrimental to our welfare and those of you who are directly concerned with the regulation and operation of drainage ditches should grasp this opportunity while conditions and sentiment are in your favor.

Other matters that we can discuss to our advantage today are the new process in Wisconsin of drying water raked cranberries artificially, the picking machine of the East, and new developments in connection with cranberry bog construction.

CROP REPORT

A. U. CHANEY, New York

New Jersey is suffering from blight, just as Wisconsin is. For Cape Cod we have no detailed estimate, but look for an increase of 50 to 100 thousand barrels over last year. Sixty per cent of the marshes in Barnstable County are dry. The crops are big, early, and of abnormal size. Growing conditions have been ideal.

Seven harvesting machines were made. The New England Sales Company contributed \$25,000 toward the experiment. The machines have been used on three bogs, and improvements have been discovered. They are working the smaller machine now, covering seven acres a day. It works fine in heavy berries. It takes a thirty-eight inch swath. There are two in New Jersey and five on the Cape. The price of the large machine is \$2,500. No price has been made on the small one.

There will be an experiment at the Association meeting in New Jersey next week with aeroplane dusting. This method has been used on the cotton and peach in the South.

Marketing looks as favorable as last year. There has been less than the usual amount of canning done, due to the scarcity of small fruit.

Wisconsin has received a black eye on account of the poor keeping quality of the cranberry last year. I hope you can redeem yourselves this year.

I also urge your co-operation in reporting promptly to the state an estimate of your crops. The government report is believed in preference to ours. Customers read the government reports. Therefore we must do all that is possible to get in a correct crop estimate.

President: We have as our guest today Prof. Wm. Sawyer of Bates College, Maine. Prof. Sawyer has spent a number of summers associated with Dr. Stevens of the Division of Plant Diseases, Bureau of Plant Industry. His work has been on the cranberry diseases of Massachusetts and New Jersey. He is here in Wisconsin to study the False Blossom of the cranberry plant and he will tell us of his observations during the past six weeks.

OBSERVATIONS OF WISCONSIN BOGS

PROF. WM. SAWYER, JR., Lewiston, Maine

This is my first visit to Wisconsin and my first acquaintance with your methods of cranberry culture, and it is, therefore, not in order for me to speak in great detail about any phase of your cranberry problems. In going from marsh to marsh during the last six weeks, there have been several things, however, that have come to my attention, and it is of these that I wish to speak in a general way.

One noticeable thing is the little trouble that you experience with insects, compared with Eastern growers. The tip worm seems to be the most prevalent, and perhaps most serious insect pest on the marshes. As many of you probably know, it can be partially controlled by sanding, coarse sand, a half-inch, every second year. A good example of this is at the Elm Lake Company marsh, where tip worm injury is much worse on the half of the marsh where sanding has not been practiced for some time. The fruit worm, the only other insect that seems worthy of mention, is not bad this year, at least at this time. Holding a flood for a few days after picking, as advocated by Dr. Franklin of Massachusetts, would probably effect a partial control of this pest.

Grass seems to me to be the worst enemy of Wisconsin marshes. Good drainage and sanding, while not possible in every case because of practical difficulties, are measures which could probably be applied to advantage in many marshes. The "water cure" is still in the experimental stage and needs further trial; it promises much. Clipping the grass has given good results on some marshes where persistently and repeatedly done. Some growers report success in

killing certain grasses with kerosene; others have had failure. There seems to be need of systematic experimentation with this method, using pure kerosene and kerosene in mixture with other substances, at different times throughout the whole growing season, and on different grasses.

Fertilizers are at present used indiscriminately. The soil content of the different marshes varies, and therefore there is need of soil testing in order to insure proper selection of fertilizer for each kind of marsh.

The loss of berries in storage is mainly due to decay caused by fungi. Recent work by Dr. Stevens shows that these fungi gain entrance to the berry at an early stage, oftentimes when the plants are in blossom. Flooding helps to spread the spores that develop into these fungi and for this and other reasons, it is probably advisable to put on a flood as infrequently as possible. Careful study of the temperature conditions that apply to his own marsh would enable the individual grower to get along safely with less flooding than is usually done.

I know that we are all much concerned about the blight which has become so prevalent during the last two or three weeks. Among the causes that I have heard suggested by different growers are the following: extreme hot weather, fungus infection of the blossom, too heavy bloom, sapping of the vines by tip worms, rain followed by hot sun, causing scald, too much rain, causing the pollen to be washed off cold nights, in which the temperature, while not freezing, was low enough to injure the tender blossoms.

I have one or two suggestions to make regarding the blight, which should perhaps be preceded by a brief reference to the botany of the flower. Development of the cranberry fruit depends on two things, pollination, which is the transference of pollen from stamen to pistil, and fertilization, the union of a nucleus from the pollen grain with the microscopic egg, one of which is in each of the small ovules, which later become the seeds of the cranberry. Obviously, pollination must precede fertilization; we should also note that in order for fertilization to occur, a delicate tube must grow from the microscopic pollen grain down into the pistil for a considerable distance to bring the sperm nucleus to the egg. In the cranberry, or any fruit, the development of each seed is dependent on fertilization in the individual ovule, which ripened to form that seed. For example, if a cranberry has twenty seeds, at least twenty pollen grains must have reached the pistil of the flower from which the cranberry developed, twenty pollen tubes were formed, and twenty different fertilizations took place in as many ovules. If we cut open a well-developed berry that set early this season, we will find all, or practically all, of the ovules plump and green, showing that fertilization has occurred and that they are developing normally into seeds. If, on the other hand, the blighted berries, let us say of the pin-head size that are so numerous now, are cut open, it will be found that the ovules are shriveled, brown, and dead in every

case. It is perhaps interesting to note also that in the berries, which are numerous now, of the size of a pea, but beginning to color like a mature berry, from half to two-thirds of the ovules are brown and dead. It would seem, then, that a partial, and in most berries, total, lack of fertilization is the cause of the blight this year.

This lack of fertilization may, of course, be due in turn to many causes. One of these might be lack of pollination. Some of Dr. Franklin's recent work indicates that the cranberry is dependent for pollination upon insects, and of these the bumblebee seems the most important. Therefore, it is not impossible that the blight this season might be traced to a lack of insects, or their failure for some reason to function as well as usual. The only other cause I will suggest is this: the blight appeared to start at about the same time on practically all marshes and this time seems to have been about the middle of July. The Cranmoor weather data for July shows that the temperature for the first fifteen days averaged seventy-two degrees, for the last sixteen days averaged sixty-three degrees, so that the average temperature for the last half of the month was markedly colder than the first half. It seems to me possible that this lower temperature may have so hindered the normal development of the pollen and the pollen tubes that fertilization was interfered with, and so brought on the blight.

I will conclude with a few remarks about "false blossom." This disease, if it is a disease, is increasing in the cranberry districts of Massachusetts, New Jersey, Oregon, and Wisconsin. In a survey of Massachusetts bogs in 1914, Drs. Franklin and Shear reported only five bogs infected and in each case, the disease was confined to Wisconsin vines, which were removed within a year's time. Now over forty bogs in Massachusetts are known to be infected. In 1924, on the five bogs first inspected, false blossom had become general on eastern varieties in each case. In 1922, false blossom was found on all Oregon bogs planted with Wisconsin vines, but only on these. In Wisconsin, at least three-fourths of the marshes have false blossom, in some cases prevalent enough to impair the yield seriously. This summer I have found false blossom growing abundantly in two different wild marshes, where the vines were supposedly growing under as near normal conditions as it is possible to have. It seems as though these few things that I have outlined would indicate that false blossom is a disease capable of being transmitted to healthy plants.

As to methods of control, I would suggest some that have been mentioned before, namely, eradication of infected vines and replanting with the more resistant varieties in those cases where infection is severe, and the general employment of weeding, sanding, fertilizers, the "water cure", or any other measures that will improve the general condition of the marsh.

In closing, I would like to say that I appreciate the cooperation and assistance that have been freely given to me by all the different growers whom I have visited this summer.

Discussions that followed brought out the fact that nearly all marshes had a heavy bloom, but with few exceptions suffered a fifty to seventy-five per cent blight. Several opinions advanced as to the possible cause were: severe winterkilling of insects such as bumblebees, etc., thus hindering pollination, lack of nourishment enough to withstand the strain, difference in temperature during the first and last half of July. A large number held the opinion that the exceptionally cold July weather was the main cause.

RECLAIMING A BOG

GUY N. POTTER, Wyeville, Wis.

I have been asked to tell of my experience in reclaiming a badly run down bog.

When I bought the Metallic Bell Bog in Feb. 1923 it was covered with from two to four feet of water and ice so I did not know exactly what I was buying. However, I did know that the bog was badly infested with weeds, was badly out of level and was not laid out the way I wished it were so that reclaiming it might well represent a life's job. I also knew that it had a good water supply and that cranberries had once grown there abundantly. Later when the water was drawn we found the vines nearly smothered with willows, hardhack, wide leaf, and bunch grass.

We looked the ground over carefully and decided that twenty-eight acres out of the seventy would clean up profitably. We got in a bunch of Indians and by the middle of June we apparently had it fairly clean. However, about this time we woke up to the fact that we had overlooked our worst enemy, the fern or brake. It was then showing up in fine shape. We knew it to be impossible to pull this out by the roots so we looked for other means to exterminate it. Billy Charles told us to use concentrated lye. We tried one barrel, then three more and ten or eleven acres of brake were 80% dead. The rest was so badly infested that we decided it was not worth cleaning. At this time we began to see that it would be cheaper and better to plow the whole thing up and plant new.

The original flood and drain canal was through the center; in rebuilding the bog a canal on one side serves as the inlet and one on the other side serves as the outlet.

We grubbed the big willows and filled all of the old ditches on a 19 acre tract. We plowed ten inches deep to cover the smaller weeds.

In plowing we experienced considerable trouble with tractors mirroring. We first used a big Twin City, then a bigger Avery and at last resorted to two Fordsons hitched one ahead of the other, pulling a 24" plow. The sod being very tender, the plow had a tendency

to clog with willow roots; we raised the beam so we had a clearance of two feet.

These pieces were a foot out of level which necessitated hauling the high ends off and filling the low ends. This we did with Fordsons and wheel scrapers.

The next spring we ditched the piece up into beds five rods wide and from forty to sixty rods long and planted it to Improved Howe vines. We cut the vines and planted them in the mud, using a four bladed stomper but did not get a real good catch. Mr. Whittlesey planted the same time but he left the vines long and used a square point shovel as a stomper and he got a fine stand of vines.

After the vines were planted we went after that old bed of fern again with another barrel of lye. This time we practically exterminated it.

Next we plowed up a twelve acre piece which included nine acres of the worst fern. We leveled it in fine shape and did our ditching that fall.

In the spring we found our ditches nearly full of mud and the piece a little out of level. We releveled it using water for our gauge and cleaned out the ditches (hereafter we will do our ditching in the spring).

We planted this piece to Searls Jumbos; we did not cut the vines and we used a one bladed stomper and got a fine catch.

In fighting weeds we find concentrated lye to be a sure cure for brake. We apply it in powder form through a long funnel 16 inches long, 3 inches in diameter at the top and $\frac{3}{4}$ inches at the bottom.

I believe that the fine fern can be killed by applying one pound of Sugar sulphate of iron to a gallon of water to the roots. Repeat this every ten days until no more shoots appear.

We found that where we had large patches of wide leaf grass the best way to get rid of it was to undercut it with the Gaynor scalping plow then pull it. This cuts off the roots and saves 50% of the cost of pulling.

In fighting the bunch grass we used a mixture of 85% kerosene and 15% used crankcase oil. This we sprayed on quite heavy without doing any damage to the vines until the new shoots started. It will kill them as well as the bunch grass. For applying this mixture we built a sprayer out of a barrel to which we attached four lead hoses, 50-35-25- and 15 feet long.

The importance of good drainage has been conclusively proven to me the past two years. The only beds that produced a crop were the ones that were well drained.

In concluding I wish to state that in my opinion it is cheaper and more satisfactory all around to plow up old beds, level them, drain them and plant your favorite variety than it is to try to reclaim them.

CONSTRUCTION METHODS USED ON THE SPRING-BROOK BOG

K. B. COLTON

The Springbrook Bog consists of a twenty-five acre brown-bush, or feather-leaf marsh located 700 feet from and eight feet above the Namekogan River, from which the water supply is taken, and into which the bog drains. A marsh of this type is formed in a pocket or basin of hard pan in which water has been retained with no natural drainage, with the growth of moss and bush throughout the ages filling it up to a level, forming the richest kind of peat for cranberry cultivation.

To secure drainage it was necessary to cut through a hill of sand about thirty feet in height, involving the removal of thousands of yards of material. The top was removed by teams, tractor, and scrapers employed in the slack time through three seasons. The bottom, approximately one-third of the dirt, was moved by water by washing it out into the river, using our pumping plant, thus securing a minimum of two and one-half feet of drainage for the beds. It might be of interest to note that in washing this ditch out we used the full stream of the pumping plant, and by use of many fresh cut jack pines the stream itself was concentrated to wash to best advantage.

For water supply we installed a Fairbanks-Morse 25 H. P. Type Y oil engine at a cost of \$1,700.00, at the river near the mouth of the drainage ditch. This engine is of the diesel type, specially constructed for city water works and electric light plants, is very much under-rated as to H. P., and burns fuel oil or kesosene. This engine drives a 12 inch Erie centrifugal pump of the horizontal type, lifting approximately 1,450 gallons per minute to a height of twelve and one-half feet. From this pump the water flows through an open cedar flume sixteen inches high by three feet wide, with a slope of one-half inch to the rod, to a part of the marsh about four acres in size used as a reservoir. In weather when frost is pending this reservoir is kept full up to about a three foot head, which water can be flowed into the beds in a very short time. In case of heavy frosts, the pump is put in action as early in the day as is thought necessary and throws up additional water which flows directly onto the beds through the reservoir, a system which might be described as a combination of the gravity-flow and the pumping systems. A rough figure for the cost of a frost flood, including fuel, depreciation, and interest on investment, would be about \$5.00 for twelve acres.

In constructing the beds on this type of bog, the following operations are followed:

- (1) The marsh is brushed, costing about \$1.00 per acre as there is very little brush or trees to be taken off.

(2) The depth of peat is ascertained every fifty feet each way by means of shoving down a twenty-foot pump rod.

(3) The beds are then staked out, keeping the deep spots in separate beds, also the shallow, to allow for settling; also, the main dikes are staked out, which are to be built from the scalplings, and to furnish roadways.

(4) The ditches being staked out, as few as possible are dug at this time, just enough to drain dry enough for work.

(5) Cutting the sod by means of a caterpillar tractor, pulling a three knived cutter, cutting both ways, which cuts the sod in cakes thirteen inches square.

(6) To remove the sod, a portable conveyer 112 feet long built in sixteen foot sections of light construction with a single chain belt with blocks, and operated by tractor by belt drive, carries the sod up to the dike, where it is put in place to form a solid dike. Usually four men are occupied pulling, and three men on the dike, it taking about four and one-half days to scalp an acre of ground.

(7) Ground is dragged by tractor with spring tooth harrow and steel drag until perfectly smooth.

(8) Sanding to a depth of three to four inches is done by wheelbarrow from pits immediately on the shore, plank track being used.

(9) Planting is done in rows 7" x 7" as early in the spring as possible, it being desired to have planting done before putting on the spring flood which usually is done about the 10th of May. This involves doing most of the construction work the fall before.

This bog, in common with all others, has had a great many problems all its own. The water system may be said to be an unusual feature, and so far it has given perfect satisfaction. The bog itself, while not the fastest for vine growth, is considered to be of the heaviest yield type, and one in which weeds can be handled at a smaller expense. The whole property including water supply, is included in 164 acres of land. It is the working out of the problems continually facing the cranberry growers, most of which are dealing with nature, that we find an unending source of interest in our industry.

In Memoriam

Whereas, the members of the Wisconsin State Cranberry Growers Association have sustained a great loss through the death of a much respected member in the person of Mr. H. R. Laing, late of Berlin, Wisconsin, which occurred in the month of June, 1925, while on a visit to his old home in Scotland, and

Whereas, Mr. Laing has served the interests of the members of this Association for many years, be it

Resolved, by this Association in session assembled, that there be spread on 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 family be furnished with a copy of the same.

Signed: A. E. BENNETT,
ANDREW BISSIG,
Committee.

In Memoriam

Whereas: Death has called Mr. Ed. Habelman, a valued member of the Cranberry Growers' Association, be it

Resolved, that this expression of regret be spread upon the minutes of this meeting and condolence be extended to the family of the departed brother.

Signed: F. R. BARBER,
A. B. SCOTT,
Committee.

In Memoriam

Whereas: Death has called one of the old and valued members of this Association in the person of Mr. George Gebhardt, of Millston, be it therefore

Resolved, that expression of regret be recorded on the minutes of this meeting and conveyed to the relatives of the brother Cranberry Grower, by the Secretary of the Association.

Signed: F. R. BARBER,
O. O. POTTER,
Committee.

In Memoriam

Whereas, a loss has been suffered by this Association in the death of L. M. Purviance, one of its old and faithful members, be it

Resolved, that an expression of regret be spread on the minutes of this meeting, and condolence be extended to the family of the deceased brother.

Signed: F. R. BARBER,
A. B. SCOTT,
Committee.

MINUTES OF THE 39TH ANNUAL MEETING

Wisconsin Rapids, Wis.,
December 9, 1925.

The winter session opened with a banquet at Hotel Witter at seven o'clock on December 8, with nearly a hundred growers and friends of the industry present. Mr. Guy Babcock acted as toastmaster. Splendid responses were made by Dr. S. B. Fracker, of Madison, our county agent, Mr. R. A. Peterson, and Mr. Donald Johnson. A fine musical program by the Nevin Quartet was furnished through the courtesy of Mr. L. P. Daniels.

Another enjoyable feature was the moving picture, showing the various phases of the cranberry industry as it is carried on in the East.

The remainder of the evening was spent in dancing.

The 39th annual meeting was called to order by President C. L. Lewis in the Rose Room, Witter Hotel, at 10:30 A. M. December 9.

Minutes of the 29th summer convention read and approved.

Address by President C. L. Lewis.

Several letters were read by President Lewis and Mr. F. J. Wood.

Dr. S. B. Fracker of Madison gave a very interesting and instructive talk.

Moved and seconded that chair appoint a nominating committee to report at 1:30 P. M.

A. E. Bennett, M. O. Potter, S. N. Whittlesey, Vere Johnson, and Henry Gebhardt appointed on above committee.

Meeting adjourned to 1:30 P. M.

A very fitting talk and eulogy of the late Jacob Searles was given by Mr. F. J. Wood. Mr. Wood was appointed to draft resolutions of regret.

Mr. Herman Gebhardt gave an interesting paper on cranberry varieties.

Motion made and seconded that the president appoint, by March 1, 1926, a committee, and the number thereon, to work with the fieldman, and that the president be one of the committee.

Financial report read. Due to the failure to receive a report from the Secretary of State to date, the auditing of the books was postponed to our next session.

Moved and seconded that nominations of the nominating committee be accepted, viz. Albert Hedler, president, Captain Guy Nash, vice president, Clare S. Smith, secretary; executive committee, Mrs. A. C. Otto and S. N. Whittlesey.

A rising vote of thanks was given Dr. Fracker for his assistance to the growers; also to our retiring president; C. L. Lewis, Jr., who during the past four years has given to this Association unceasingly and unselfishly of his time and ability.

Moved that a vote of thanks be extended to Mr. Daniels for the use of the assembly room and the music; also to our toastmaster, Mr. Babcock.

Upon Mr. Lewis' request, Mr. Hedler took the president's chair and gave a short talk.

On motion, the Association adjourned.

CLAIRE S. SMITH, *Secretary.*

OFFICERS OF WISCONSIN STATE CRANBERRY GROWERS ASSOCIATION, 1926

President-----ALBERT HEDLER, Phillips, Wis.
 Vice-President-----CAPT. GUY NASH, Wisconsin Rapids, Wis.
 Secretary-----CLARE S. SMITH, Wisconsin Rapids, Wis., R. 3
 Executive Committee-----S. N. WHITTLESEY, Cranmoor, Wis.
 Executive Committee-----MRS. A. C. OTTO, Wisconsin Rapids, Wis.

ADDRESS BY PRESIDENT LEWIS

We are assembled again to talk over the events and results of the season just closed, and to speculate on what 1926 may have to offer. We are saddened by the loss of two of our prominent members, Mr. Jacob Searles, one of our oldest and ablest growers, and Mr. H. R. Lange, formerly one of the directors of our Sales Company. Such losses as these are very hard for us to bear, and we do not know how to fill their places. This makes us realize that there are altogether too few young men in the cranberry industry in this state. It is well for the older men to encourage their sons and grandsons, their daughters and granddaughters to take up the work and continue in their footsteps. Aside from the attractiveness of the life of the cranberry grower, it is certainly a very healthy life, as the number of men that continue in the business for forty or fifty years signifies; and it also offers a very nice financial return to those who stay by it.

The season just closed has been a peculiar and unprofitable one for most of us in Wisconsin. It was peculiar in that we had a good season up to the blooming period, but unprofitable because of the small crop. Blight or failure of the bloom to set fruit was unusually heavy. However, the year has offered some encouragement to us, chiefly in that our campaign for State Aid has been successful. And the prices obtained for what berries we did have were very good indeed. We were successful in our attempt to secure the passage of the appropriation bill through the legislature. It enables the state to employ a man who will spend his entire time in the service of the cranberry growers. It took only a proper presentation of the case to win their support. We could not have hoped for a finer and fuller co-operation by the state than we received. We were encouraged by every official that we approached, and I feel sure that the results that will be obtained from this appropriation will more than repay them for their action. Mr. Henry F. Bain, formerly with the Depart-

ment of Agriculture, has been appointed and has accepted this position, and will take the office on March 1.

Without Dr. Fracker's assistance we would not have succeeded in this undertaking. He has been our staunch friend for many years. You remember the insect surveys that he instituted; and he has helped us in a great many ways to secure our new fieldman.

There is one thing we must be careful of. That we render our fieldman all possible assistance and co-operation when he comes on the job. We shouldn't expect too much the first season. It is going to take him some time to get acquainted with the work, and with Wisconsin conditions. Any man who would come in here and immediately tell us what is wrong, we would be suspicious of, so let us give him plenty of time to get his bearings.

The season's crop of cranberries in Massachusetts, New Jersey and Wisconsin amounted to a little less than 500,000 barrels. This is made up of about 375,000 barrels in Massachusetts, a little under 100,000 barrels in New Jersey, and a little under 20,000 barrels in Wisconsin. This is about an average crop, considering the last ten years, but a very short crop for Wisconsin. As you all know, I think the shortest crop in eighteen years, or even a longer period of time—and a very short crop for New Jersey also. The quality of the crops in all states was very good, and that of our own crop was unusually good. There was not a car of Wisconsin cranberries rejected this year, and I think it is safe to say that the reputation which we lost a year ago due to a very unfavorable growing season has been regained; but it will be up to us next year and in all succeeding years to retain this reputation. The chances are, if Nature works as it usually does, that Wisconsin will probably come back next year with an unusually large crop. We will hope so. We may have a 60,000 barrel crop; and we should have, following this 20,000 barrel crop. New Jersey will also undoubtedly come back with a very large crop. New Jersey is liable to have a 250,000 barrel crop next year. On the other hand, Massachusetts, who had 400,000 three years ago, 275,000 a year ago, and 375,000 this year, should fall short next year. That is merely speculation of course, but if it works out that way, we will have better than an average crop in the country next year. We must not fail to notice that the crop produced in that small section devoted to cranberries in Washington and Oregon was approximately 20,000 barrels this year or as much as we raised in Wisconsin. In an endeavor to pull a large crop through in Wisconsin next fall, we should all work together to the fullest extent. There should be no such thing as unfriendly competition in this state. There is ample market for all the good cranberries we can produce, and we should help each other in our problems wherever possible. We should be able to look forward to our future with a good measure of optimism. With our market assured, with the backing of our state, and with the co-operation of the federal government, it looks like a rather rosy future for us in Wisconsin.

I wish to take this opportunity to thank the members of the Association for their splendid co-operation and support during the past four years, and I hope that you will give your new president the same kind of encouragement that you have given to me; and I hope he will find it as pleasant an experience as I have found it.

OUTLOOK FOR IMPROVED PEST CONTROL IN THE WISCONSIN CRANBERRY INDUSTRY

By S. B. FRACKER, Madison, Wisconsin.

It may seem strange to say that the price of potatoes has an important effect on the cranberry industry. Nevertheless recent increased interest on the part of the public in the prosperity of the cranberry growers may be traced directly to the economic condition of the farms of northern Wisconsin. The potato situation of the last few years has shown that Wisconsin cannot go on clearing forest land and planting the fields with a single crop if the state is to prosper permanently.

As a result of this situation the cranberry growers met a particularly receptive ear when they appealed to the last legislature for an appropriation which would enable them to reduce their losses from insect pests and plant diseases. The request was supported by the entire state administration and the needed appropriation passed both houses of the legislature without opposition. A better utilization of the wasted areas of northern Wisconsin is needed and cranberry culture is a promising solution for some of the peat lands.

The new appropriation of \$5,000 for this purpose went into effect on July 1, 1925, and the act was signed by the governor a few days before that date. The commissioner of agriculture assigned to the state entomologist the responsibility of finding a specialist competent to undertake the work and available for it. Less than a dozen cranberry specialists with entomological and pathological training were discovered, and seven of them, representing five states, sent in applications for the position.

I am now pleased to report that Mr. H. F. Bain, of Seaside, Oregon, has been appointed for the work and that he will take it up on March 1, 1926. His headquarters will be at Wisconsin Rapids, where he will come with his family in the spring.

Mr. Bain is a young man, born in 1893 at Knoxville, Tennessee. His college education was received at the University of Tennessee and he has a master's degree from Brown University, where he specialized in Botany and Plant Pathology. For two years he was plant quarantine inspector for the Federal Horticultural Board, and since 1922 has been in charge of a Pacific coast field station for the United States Bureau of Plant Industry.

The cranberry specialist will have several types of responsibility, the leading one of which will be the discovery of incipient insect and

plant disease outbreaks. Many important cranberry insects are so unobtrusive in their early stages that the growers are almost sure to overlook them at the time when control measures can be applied most easily and efficiently. The black-headed fire worm is an example with which you are all familiar.

Another activity will consist in the dissemination of the most recent and best information regarding cultural methods as they affect insect control. Special services of great importance will be improvements in frost forecasting and advance information of the keeping quality of cranberries in storage.

While the specialist's work will take on the nature of a field service rather than a regulatory activity, he will of course look after the false blossom inspection for those who apply for nursery certificates. We may also say that while his work will not be primarily investigational we should look forward to his increasing our knowledge of cranberry cultural methods by means of well planned comparative tests carried on in cooperation with the growers themselves. It is also possible that the Federal Department will be able to carry on some direct investigational work in Wisconsin, now that a permanent cranberry office is being established.

Before coming to this meeting, as I was thinking over what one might discuss who is not a cranberry grower himself, it occurred to me that a review of recent developments along two lines might make the talk worth while. These lines are: first, the question of storage rot, and second, that of false blossom. Dr. Neil E. Stevens, of Washington, D. C., has several recent papers on these subjects which contain material which has not been presented before to the Wisconsin Cranberry Growers so far as I know.

A study of thousands of samples covering a period of several years has shown that twenty-five different kinds of fungi are found in rotting cranberries. About ten of these are of economic importance and four are common enough to have received popular names. They are in the order of their prevalence, end rot, bitter rot, early rot, and blotch rot. All of these four fungi are also found in green berries picked in mid-summer but the order of their prevalence is different, early rot appearing in the largest number of samples, with bitter rot second.

While the Wisconsin cranberry grower has always considered these rots in their relation to storage conditions, as a matter of fact the infection enters the berries comparatively early in the season. In 1922 sixty per cent of those examined had some rot fungus present as early as July 6, while in 1923 thirty-five per cent of the berries were infected on July 18. In fact all of the four fungi named have been found in the cranberries before July 12 except blotch rot, the earliest date of which is July 26.

Other indications of the importance of early season infection are the relation to flooding, and the part of the berry through which the infection enters. Three-fourths of all the fruit examined showed

that the infection started at the blossom end. It was also found that a June re-flow increased the amount of infection from thirty-five to sixty-seven per cent in 1922 and from fourteen to seventy-seven per cent in 1923. This is due to the fact that the fungus spores present in certain parts of the marsh, floated in the water and were therefore generally distributed.

An interesting difference between the different types of rot fungi in cranberries may be illustrated by the fact that storage at a temperature just above a freezing point prevents the further development of bitter rot and early rot but does not control end rot or blotch rot effectively.

Some progress has already been made in the direction of forecasting keeping quality and several types of tests offer some hope of success. They depend on determining the extent to which fungi are in the berries just before harvest, or the physical condition of the berries at that time. These tests should be developed as rapidly as possible and introduced on a commercial scale as soon as they are found reliable.

The other new material which you may find of interest concerns false blossom. Studies of the distribution of this disease in New England and Wisconsin yield increasing evidence that the condition is infectious and that it is spread primarily on cuttings from diseased bogs.

In the Cape Cod area, Dr. Stevens finds, false blossom is known to occur on fifty-two marshes, most of them in Plymouth county. On six of these, it is known to have been introduced from Wisconsin, and on many of the others it appeared after securing cuttings from those six.

It is especially common on the Holliston variety which is suspected of being in part Bennett Jumbo.

Of the few infected Massachusetts bogs outside Plymouth county there is a record of the introduction of vines from East Wareham or Carver, Massachusetts, in most cases. Where only local varieties have been planted, false blossom is unknown.

In New Jersey the records were found less complete but at least three instances of the introduction of diseased vines from Wisconsin and Massachusetts are known. The native New Jersey varieties are highly susceptible but false blossom does not occur on wild bogs.

Prof. Sawyer reported to you last summer the discovery of the disease on three wild marshes in Wisconsin, all in the northwestern part of the state and all isolated from cultivated cranberries. The draining and burning of the wild bogs in the Wood-Jackson county area made it impossible for Prof. Sawyer to confirm the belief that the disease originated in the wild bogs of the Mather district, but there is much evidence pointing in this direction.

There are differences in the extent to which different varieties of cranberries are attacked by false blossom but none of them seem to be immune except possibly McFarlin. The Searl's Jumbo only rarely shows infection in Wisconsin but perhaps it may not have

been fully exposed, as it is readily subject to the disease in Massachusetts.

Since no "germ" or micro-organism has been found associated with false blossom, and artificial inoculation is difficult if not impossible, one is inclined to compare it to the mosaic diseases of other plants. These are each caused by a filterable virus, that is, a substance in the plant juices which retains its virulence after being passed through a porcelain filter. Most mosaic diseases are transmitted by sucking insects such as plant lice or leaf hoppers and Dr. Franklin is now making a study of such insects in Massachusetts bogs to find a guilty one if he can. The fact that while false blossom is present on the Pacific coast, it does not spread there, suggests that an insect distributing agent exists east of the mountains which has never been carried to the far west.

In conclusion I wish to congratulate the cranberry growers on the foresight with which production and marketing problems are being considered and the manner in which the different growers unite in favor of plans which will benefit the industry. Wisconsin can produce many more cranberries than the present crop if the industry can be made so consistently profitable that the capable growers can readily secure capital for expansion. Cranberry marketing is handled very efficiently and production can be improved as soon as the growers can secure more effective control of insect pests and plant diseases.

CRANBERRY VARIETIES

MR. HERMAN J. GEBHARDT, Black River Falls, Wis.

When I chose "Cranberry Varieties" as the subject upon which I am to say a few words, I thought of a remark an elderly lady made when discussing men in general. She said, "There is something wrong with all of them." There's something wrong with all cranberry varieties.

When I first attended cranberry growers meetings, the Bennett Jumbo was well up on the horizon, closely followed by the Metallic Bell. As a beginner, I found it difficult, at that time, to buy cranberry vines in Wisconsin due, to a great extent, to the droughts and fires of the previous years.

I recently came across a letter written by the elder Mr. Bennett in which he said, "We will not sell any of our Bennett Jumbo vines from our Grand Rapids marsh at any price." I'm glad he wrote the letter. Metallic Bell vines were twenty cents a pound. Mr. Clark Treat was getting \$9.00 per barrel for his Metallic Bell berries. Other varieties brought \$5.00 or \$6.00 per barrel. I am now discarding two acres of Metallic Bell, the last I have of that variety.

The greatest difficulty with those two varieties was the false blos-

som, which I fear is a much greater problem than we are inclined to believe.

The Eastern McFarlin was a favorite with some growers. It was never boomed very much that I remember of. It has size, excellent keeping qualities, good flavor, is easy to mill, has been known to yield two hundred barrels per acre in Wisconsin, and I have been unable to learn of its having gone to false blossom at any time. However, there is something wrong with it. A. D. Makepeace wrote me about a quarter of a century ago that the variety had a tendency to yield uneven in size on the vines. That holds true also in Wisconsin. Although the berry does not color well when gathered green, yet that may be one of its good points, for how are we to know but that all varieties should be permitted to color in a natural way on the vines?

Other eastern varieties grown to a limited extent in Wisconsin are the Seymour Beauties and Centerville Bugles, or Pointed Howes. Both are excellent keepers, are seemingly free from false blossom tendency, and good yielders, but are more difficult to mill because of their long shape. However, the late mills seem to overcome that point.

The eastern Centennial has a number of good points, being a very large round berry with excellent flavor, and mills easily. It is reported to be free of the false blossom tendency. I have found it very prolific, but a doubtful keeper. The vines take on a heavy growth, which tends to keep out foul stuff such as grasses and weeds. I have sometimes thought this is a factor which we Wisconsin growers should consider in an ideal variety—a vine that will help us fight the grass problem. The eastern Mammoth has this characteristic also, but is a vine that has the false blossom tendency on three Wisconsin marshes where this variety is grown. I sometimes doubt whether the real Mammoth goes into false blossom. It may be another variety. I have noticed some I believe are the Early Blacks. It may be that the false blossom berries were these or another small pointed berry.

After the period of the Bennett Jumbo and Metallic Bell, other Wisconsin varieties appeared that had popularity. I refer to the Prolifics, Palmeto, Searls Jumbo, and a later variety that has much merit, the Gebhardt Beauty. But from what information I can gather, there is something wrong with all of them. The ideal cranberry has evidently not been found. Perhaps somewhere, at some time, such has existed. Perhaps among the millions of wild varieties seen grown in Wisconsin such existed; or possibly on the old experiment station, unnoticed, almost unknown, such may be found.

The East has perhaps been fortunate in adhering to two varieties, the Early Blacks and the Howe. The one has an extremely early ripening characteristic, coloring either on the vines or in storage, but some years are inclined to run small in size, and are considered a fair keeper. The Howe is inclined to be rather small in size, but very uniform, will color nicely either on the vines or in

storage, and keep like bullets. It is popular with the trade, but cranberry authorities tell us it is quite flavorless.

It appears to me that the problem that is confronting the Wisconsin growers is whether or not we should fall in line and grow the two popular eastern varieties or will the characteristic, progressive, independent spirit of Wisconsinites prevail, and we beat off on some other course?

If the Howe is lacking in flavor, are we enhancing the consumption of cranberries by planting that variety, knowing that the consumer buys cranberries to satisfy an appetite? Would it not be better to supply the consumer with a berry that has flavor? No doubt all of you have had the experience of buying oranges that were tasteless or sour. Your appetite for oranges was satisfied for weeks. Had the oranges been delicious, you would have hurried to the store for more, fearing the supply would be gone. Time, experience, and experimenting, are the factors that will assist us in determining the merits of cranberry varieties.

In Memoriam

Whereas: Divine Providence has seen fit to remove from our midst Mr. Jacob Searles, and

Whereas: This Association and our community has lost in him a valued member whose presence will long be missed, and who has won the esteem and respect of every member of this Association, be it

Resolved, that this Association express its deep admiration for his sterling qualities and an appreciation of his services in behalf of this organization, be it further

Resolved, that we write in our records this tribute to his memory, and tender his bereaved family our sincere sympathy.

WISCONSIN STATE CRANBERRY GROWER'S ASS'N,

By its *Secretary*,

C. S. SMITH.

FINANCIAL STATEMENT

OF

WISCONSIN STATE CRANBERRY GROWERS' ASSOCIATION
CALENDAR YEAR 1925

		Receipts	Expendi- tures
1924			
Jan. 1	Balance on Hand	\$190.23	
Jan. 16	Membership Dues	35.00	
Jan. 26	Hein & Sutor—Notices, January meeting.....		\$6.50
Mar. 12	Erma Gaulke—Stenographic services		15.00
Apr. 20	C. S. Smith, Secretary—Salary and expense 6/1/24 to 1/1/25		53.60
July 21	State Printing Board—Reports 1924		73.62
July 21	C. S. Smith, Secretary—Salary and expense to July 1, 1925		46.92
	Total Receipts to July 1, 1925	\$225.23	
	Total Indebtedness Incurred Prior to July 1, 1925		\$195.64
	Balance Available for Indebtedness Incurred Prior to 6/1/25		29.59
Aug. 1	Membership Dues	\$13.00	
Aug. 14	Wis. Rapids Tribune—Notices, August meeting.		5.65
Dec. 11	Wis. Rapids Tribune—Notices, winter meeting.		5.50
	Receipts Deposited with State Treasurer.....	\$13.00	
	Expenditures		\$11.15
	Balance on Hand Jan. 1, 1926, State Treasurer		\$1.85
Dec. 17	Membership Dues not deposited with State Treasurer	16.00	
Jan. 1	Membership Dues not deposited with State Treasurer	2.00	
Jan. 1	Erma Gaulke—Steno. services Dec. 11, '25....		\$15.00
	Total Receipts since December 11, 1925.....	\$18.00	
	Total Expenditures		\$15.00
Jan. 1	Balance on Hand not deposited with State Treasurer	\$3.00	
	Balance on Hand deposited with State Treasurer	1.85	
	Total Balance Available Jan. 1, 1926.....	\$4.85	
	Bills Unpaid		\$49.92

Note: In a letter of December 19 from the Secretary of State, I was informed that it would not be necessary for us to deposit our collections with the State Treasurer unless we desire to have our accounts audited under the statutes of the State.

Also that our annual appropriation of \$250.00 under section 20.61-3 has been repealed by chapter 392, Laws of 1925, and therefore our balance on July 1, 1925 is available only for indebtedness incurred prior to that date.

C. S. SMITH, Sec'y.