Tenth annual proceedings of the Wisconsin State Cranberry Growers' Association. Annual convention: Grand Rapids, August 18, 1896. Annual meeting: Grand Rapids, January 12, 1897. 1897 [cover 1896/1897...

Wisconsin State Cranberry Growers Association
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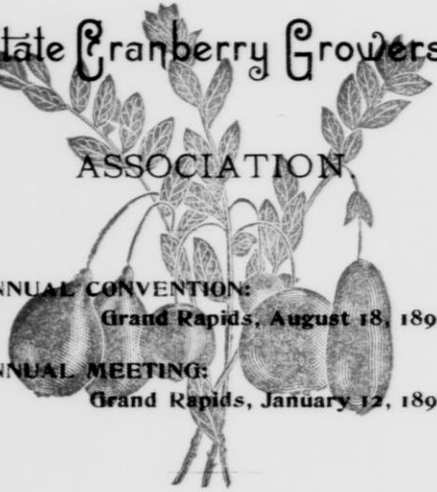
Tenth Annual Proceedings

OF THE

WISCONSIN

State Cranberry Growers'

ASSOCIATION.



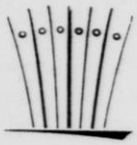
ANNUAL CONVENTION:
Grand Rapids, August 18, 1896.

ANNUAL MEETING:
Grand Rapids, January 12, 1897.

A. C. BENNETT, President,
Zittaw, Wisconsin.

E. P. ARPIN, Secretary,
Grand Rapids, Wisconsin.

REPORTER PRINT,
GRAND RAPIDS, WISCONSIN.
1897.

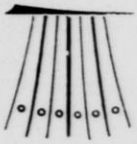


PROCEEDINGS

OF THE AUGUST CONVENTION, HELD AT GRAND RAPIDS, AUGUST 18, 1896.

PROCEEDINGS

OF THE TENTH ANNUAL MEETING OF THE WISCONSIN STATE CRANBERRY GROWERS' ASSOCIATION, HELD AT GRAND RAPIDS, JAN. 12th, 1897.



LETTER OF TRANSMITTAL.

To the Honorable Edward Scofield,
Governor of the State of Wisconsin.

Sir: I have the honor to submit herewith, in requirement of law, the Tenth Annual Report of the Wisconsin State Cranberry Growers' Association, containing papers read and discussions thereon, together with an account of moneys received and disbursed for the year 1896.

Respectfully yours,

E. P. Arpin,
Secretary.

Grand Rapids, Wisconsin, January 12, 1897.

PROCEEDINGS

OF THE AUGUST CONVENTION, HELD AT GRAND RAPIDS, AUGUST 18, 1896.

The meeting was called to order at the city hall at 10:30 a. m., Vice President S. A. Spafford presiding.

Minutes of last meeting read and approved.

Letters from President Kruschke read, making report as to probable amount of Berlin crop to be 8,000 to 10,000 barrels.

Wood county crop estimated at about 600 barrels.

Amount for Valley Junction and vicinity, 600 barrels, and other districts, 800 barrels.

The matter of sinking the well at the Experimental Station was discussed. The opinion prevailed that it would be important to sink the well so as to obtain an underground supply of water, the question of sufficient funds being the only hindrance of carrying work to completion.

Mr. Arthur Bennett exhibited several samples of cranberries and showed some vines affected by fire worms.

Meeting adjourned until 2 o'clock p. m.

AFTERNOON SESSION.

Meeting was called to order at 2 o'clock by vice president.

The following bills were allowed:

Bill of A. Hasbrouck for delivery of vines to Experimental station	$ 2.50
J. A. Gaynor paid H. Kruschke for pulling and barrelling six barrels of vines	5.00
Centralia Hardware Co., 1 well point	2.50
Bill of Jas. Gaynor for board and labor of men	12.95
Bill of Leo Tangler, labor on Experimental station	12.22
Bill of A. Searls, labor on Experimental station	29.76
Bill of Aldrich Arnold, labor on Experimental station	2.30
Bill of Anton Arnold, labor on Experimental station	13.37
Bill of Melvin Potter, labor on Experimental station	1.70
Bill of John Preba, labor on Experimental station	6.90

Mr. A. Searls made a verbal report on work done in planting vines on Experimental station, and stated that about one-fourth of an acre was planted on a scalped and sanded piece of ground.

Motion made and seconded that Mr. A Searls be authorized to make a map of the Experimental station and buy a record book and keep accurate record of all proceedings and steps taken, such as variety of vines planted and cost of work and other data.

Upon motion made and seconded, meeting adjourned.

E. P. ARPIN, Secretary.

SEPTEMBER, 25, 1896.

The secretary withheld the issue of the above report in order to furnish data as to the present season's crop:

The report for Valley Junction is	1,742	barrels
" " " Mather	185	"
" " " Cranberry Center	375	"
" " " Bearss Station	300	"
" " " City Point	100	"
" " " Berlin	9,000	"
Total	11,702	barrels

Mr. W. S. Braddock, of Mather, writes as follows:

"With the increased rainfall this season, those marshes which have reservoir capacity will go into the winter in good shape. The vines are well budded and ought to make a good showing next year."

President H. O. Kruschke, of Auroraville, writes as follows:

"The vines are looking fine here, and it seems more like old time seasons."

There are a few districts we have not heard from where there are a few cranberries raised, but the total amount in the state, outside of Berlin, will probably not exceed 3,000 barrels.

E. P. ARPIN, Secretary.

PROCEEDINGS

Of The Tenth Annual Meeting of The Wisconsin State Cranberry Growers' Association, Held at Grand Rapids, Jan. 12th, 1897.

The meeting was called to order by President Kruschke.

Minutes of last annual meeting and August meeting, read and approved.

AUGUST ESTIMATES CORRECTED.

Berlin and vicinity (Fox River valley)	9,000	barrels.
Wood County	500	"
Valley Junction	700	"
Cranberry Center	150	"
From wild marshes in Northern Wisconsin	800	"
Tomah	200	"
Mather, less than	300	"

Reports of standing committee, on suggestion of the president, were laid over until 2 p. m.

Treasurer's report called for and, on suggestion of the President, was laid over until the afternoon.

ELECTION OF OFFICERS.

The following were elected officers for the ensuing year:

President—A. C. Bennett.

Vice President—Chas. Briere.

Secretary—E. P. Arpin.

Treasurer—A. E. Bennett.

Member of Executive Committee—Andrew Searls.

Andrew Searls spoke in favor of putting "Lingon berries," known as Norwegian berries, on the tariff schedule, and the chair appointed a committee of two, consisting of A. Searls and A. E. Bennett, to report a resolution on the subject at the afternoon session.

On motion, association took a recess to 1:30 p. m.

AFTERNOON SESSION.

Meeting called to order at 1:45 p. m.

Report of Gaynor Brothers on Experimental station, read by J. A. Gaynor. Report, upon motion, duly adopted and filed.

Report of Andrew Searls, as to work on Experimental nursery, read and approved. Mr. Searls also made verbal report, approving of work done and condition of Station No. 1 the past season.

J. A. Gaynor spoke in favor of sinking a well on Experimental station sufficiently deep to secure a supply of water, and as soon as well was deep enough to have the capacity, by attaching a steam pump to it. A discussion ensued by several members as to the advisibility of pushing the work of drilling a well of sufficient depth as to pump with a good engine.

Motion made and seconded that Andrew Searls and E. P. Arpin be authorized to push the work of deepening the well at Experimental station, or making a new well, and that $100.00 be appropriated for that purpose. Motion carried.

Report of A. E. Bennett, treasurer, read and approved and, upon motion, same was adopted.

REPORT OF TREASURER A. E. BENNETT.

April 6.	Paid	Order No. A., Brundage Brothers		$ 23 00
do 18.	do	Order No. B., Aermotor Co. for Wind Mill		140 00
Aug. 18.	do	A. J. Hasbrouck, for livery, to berry vines		2 50
		Centralia Hardware Company, for Well Point		2 50
		J. A. Gaynor, freight, expenses on vines from Berlin		5 00
		Jas. Gaynor, for work and board of men		12 95
		Leopold Lander, work at Experimental Station		12 22
		A. Arnold	do	2 30
		A. Searls	do	29 76
		A. Arnold	do	13 87
		M. Potter	do	1 70
		John Preba	do	6 90
Jan. 18.	do	Hotel bill, Prof. King		1 25
				$253 45

January 14.	To	Balance on hand	$ 31 49
April 16.		State Fund	250 00
Jan. 9, 1897.		Membership fees (Secretary)	22 00
			$303 49
		Jan. 18.	253 45
		Balance on hand	$ 50 04

Motion made and seconded that James Gaynor be required to keep a memorandum of each cranberry vine and make record October 1 as to season's growth and all changes noted as to the same.

Motion made that Mr. Searls be requested to keep up

his book as to work on nursery and to present it, including expenses incurred.

Two communications from A. C. Bennett, one on his trip to Cape Cod, Mass., last August, among the bogs in that region, and an article on water supply also included in this report.

Moved and seconded that the communications of Mr. Bennett be published with the proceedings.

SLEEPY EYE, MINN., Jan. 9, 1897.

To The Wisconsin State Cranberry Growers' Association, Grand Rapids, Wisconsin. Gentlemen:—Your Secretary writes me that he hopes to see me at the Cranberry Growers' meeting, and would be pleased to have me give you an account of my trip east, and also any other subject I may be pleased to favor you with. I regret very much that I cannot be there; I will, however, give you a few pages from my diary which may give you some idea of my field of observation.

I left Wisconsin for the east the last day of June, and returned in September. August 10 I met at Wareham, Mass., a company of eleven representative cranberry growers from New Jersey, having been invited to do so by my friend, Mr. Rider, who made it very pleasant for me; there we were joined by Mr. Small and Mr. Makepeace, who furnished a livery rig large enough to carry us all. We visited many marshes, all of which showed very much the same general method of cultivation, though Mr. Small's marsh was kept the cleanest, and the crop on it was estimated at 125 barrels per acre by Mr. Makepeace. I saw here the work of the fruit worm and the girdle worm. This last is a worm about one inch long, of brownish color; it girdles the roots just under the surface; the plant turns red and dies; they generally work in strips or irregular patches. The remedy is re-sanding soon as discovered, so as to have the vines above take new root; but in time other remedies will have to be applied, which will destroy the worm.

On the large marsh of Mr. Makepeace, which the year before had produced 11,000 barrels of berries, we found a light crop, estimated at 3,000 to 4,000 barrels. Here I saw many acres of solid vines all turned red by the fire or vine worm; the worst I saw were near the center of the large marsh. I visited the barrel factory of Mr. Makepeace; I saw the pickers' buildings, and we were all royally entertained at his place, also at Mr. Small's. We had lemonade "made in the shade;" we all had a jolly good time. Cranberry talk was free and profitable, with the object lessons before us. On a previous trip with Mr. Small alone, we went to see some marshes that had been over-run with the army worm, which I felt some interest in, as I understand the army worm last season visited some portions of Wisconsin. It had taken the vines much worse than the vine worms. The remedy was late flooding, which had destroyed the crop for this season where vines were left; it came there once before about fifteen years ago. Mr. Small hires his pickers by the season; if

they quit before the season is over he deducts 10 per cent.: he says it works well.

I later visited the first marsh that was ever sanded in Cape Cod; it is still bearing about 75 barrels per acre and has never missed a crop for the last fifty years. It was planted in 1846; the old veteran marsh, with proper care, is good for another fifty years. I saw scalded berries; they are berries that are cooked on one side by the sun, while the other is not.

I saw rubber used on the cranberry mill to prevent the bruising of the berries and think this idea alone is worth all my trip there. I give it to you, but I find I have said things in the past that others have taken advantage of to my injury and to their benefit, and in future I propose to keep some things to myself. I visited the East under very favorable circumstances; the season of the year was most favorable and my friends, both in Cape Cod and in New Jersey, devoted nearly all their time to us, with a freedom which no stranger could expect. I took memorandum of each day and attended the Cranberry Convention at Philadelphia. I will give you a few days from my Journal.

AUGUST 26. Took Ferry in front of Chestnut street in Philadelphia, for New Jersey, and by R. R. to Mr. Rider's marsh. (Mr. Rider and Mr. Small, you remember, were at our August meeting in 1893.) Mr. Rider went out with us. He showed me where he first invested in the cranberry business; it proved a failure, and the abandoned plantation remains as a warning to others, and a monument to bright hopes that died early. It is a dry, level sand. Near Mr. Rider's buildings, 100 years ago, there stood an iron blast furnace that employed about 75 people. The only remains of it now is the slag around this furnace. There had been one other furnace near this, which 100 years ago the people called the Unknown Furnace. Slag from it is there in abundance. This is all history tells us of it, except that there was an old burying ground near there.

We went to see Mr. Rider's Bog No. 1 which consisted of an old mill pond and also some say a quiet mill, way back in the early days, but evidently later than the blast furnaces, as the ore for these blast furnaces was taken from the bottom of this pond where Mr. Rider now raises fine cranberries. In trying to dig out a spring below the old mill pond dam, the hub of an old water-wheel was discovered, the upright portion having evidently entirely rotted away, the lower part sunken in the earth, and the water was preserved. This mill pond was once covered with water eight to twelve feet deep, with slapping sides quite steep. It contains about 24 acres, through which a stream of water now runs, which if confined, would just about pass through a kerosene barrel. I was surprised to see these banks lined so far up the sides with cranberry vines, but this is owing to the ability to flood it so high in winter. He has now also built a second pond above this, and made a reserve pond from it; he has made ditches around on the side of his vines above the highest of them, so that the water may soak from it down each side and keep the vines well supplied with water. This reservoir pond, he expects in a short time to plant to vines; the

water will then be ponded on other lands, still farther up the stream. The water on this reservoir has killed out everything.

On this trip in New Jersey, I saw other lands under water, and I was told it was to kill out the timber and brush; that after it was killed they burned it over and planted the vines; they do not take out the stumps or roots, and even old logs and rough places are left. The vines are stuck in here and there and left to take their chances. I was surprised at the amount and variety of grasses and weeds growing on these marshes, and I think they miss it in not drawing off the water and giving it one summer to sprout these weeds and grasses, then duck it again and kill them before they mature their seeds. But, the vines have done well.

Mr. Rider's bog is much cleaner than the general run of marshes. He showed me places where he had picked six bushels of berries from a single square. On one side of this marsh there seemed to be patches of vines that had been stunted by spring water coming up from under them; this was drained every rod or two; the other needed no draining. Some other places up on the sides had been burned or dried up in the hot sun. This his irrigating ditches will now supply with water. His berries were on the whole very nice, and unusually large for this time of year, August 26, and beginning to turn. We went to his Bog No. 2, which is very much like No. 1, only contains about 45 acres. It had suffered severely from what at first appeared to be the fruit worm, but such was not the case, as the fruit worm is unknown in New Jersey. I looked for them everywhere, but did not find one. This was the work of katydids, which eats out the seed, leaving the berry to dry up. Mr. Rider caught an extra large grasshopper, which snapped his jaws against his finger nails so that I could hear him, though not sitting on the same seat. Seemed as though they could open a berry if they wanted to; in many places they had taken every berry; in others, many of the dried up berries were left; no one finds any way to destroy them except by renting young turkeys. Away up on a neck of No. 1 marsh Mr. Rider was putting in a wind mill to supply water for pickers, and also to supply water for the ditches, which at that point were now dry. Here we saw the testing for water by an expert in that line. He took a crotch of young maple and holding the ends of it in his hands very firmly so that they could not turn he passed back and forth over where he had previously located the spring and it would turn and point down whenever he crossed it. I took hold of the end of the stick to see that it did not turn, and also watched his hands to see that he kept a firm grip on the ends; the crotched part of the stick seemed to be bent when passing over the spring, just as though some one down there had a string tied to it. I took the crotch in my hands; at first it seemed to be alive with electricity, and was determined to turn over toward me and twist over in my hands, but in a moment or two it seemed to lose this power and became like any other crotched stick. The man said it was only one in a great many that could find water that way, but he said there was a stream of water which he had traced there for

some distance. A pipe driven down 38 feet brought up pure spring water in abundance, but was not quite far enough to flow. There is no stone in this part of New Jersey; it was at one time under the sea, and this land was made by the sea which is still adding soil to this state. It is beach sand coming back from the marsh. We passed through Mr. Rider's young peach orchard and found plenty of nice, ripe peaches. My friend, Mr. Miller, said he ate ten, I did not count those I ate. Returning to the house, Mr. Rider showed me his implements for planting vines, which is like the stilts I used to walk on when I was a boy. He showed me the implement he uses to apply sulphuric acid: it is made of lead pipe and made me think of our corn planter in its method of using. He showed us where he had used it. Many tons of this article are used in New Jersey to kill what we call bunch grass, brakes, ferns and other foul stuff. It costs them about one cent a pound and a teaspoonful kills most anything. Many dilute it with 50 per cent water. Mr. Rider thinks ferns can be killed by repeated mowings in August.

Mr. J. J. White, author of "White on Cranberries," told me he used a couple of tons of sulphuric acid the past season. Mr. Rider showed me his style of bog knife; also his weed puller, apparently of his own invention, it consists of three iron hooks, teeth or fingers, one a little back of the other to represent the hand, placed in a long handle it works well.

At dinner time no one would think we had just come through the peach orchard. Here I saw sweet potatoes growing in the garden; I also saw a Persimmon tree and a Mulberry tree, on which the silk worm feeds. I saw where Mr. Rider was scalping among roots and stumps which would scare a western man out of the field, and for which he had no permanent water supply. Here I left Mr. Rider and my friend Miller, and went with Captain Haynes, who had kindly come across the country some twelve miles to get me. He had a good horse, and we made good time; we looked over his marshes, which were so constructed that we could ride on the dams and see the most of them; they were loaded with berries. I got out several times and examined them, and then went across a small neck of marsh through the thickest berries I ever saw, the vines literally down under their loads. We visited the large marsh of Theodore Budd, president of the Association. This was the only thing I saw that looked like a Wisconsin marsh. I was told that this marsh had been flooded to kill out the grass before planting, and such seemed to be the case. Some of his marsh was quite dry and he had plowed it, turning up sand with a little muck. I saw vines on this marsh, but no berries of any account. I presume they were cut off by the frost of June 2nd. The last marsh visited of Mr. Haynes', was a large marsh like Mr. Rider's. It is the bottom of an old mill pond; he saws logs in the winter and raises cranberries on it in the summer; it is nearly flat and was planted one year ago last June 1st. In one place they had made a remarkable plant of vines. It took three barrels to the acre and he said one vine was as good as a dozen. We saw other bogs, and in the evening talked cranberries to a late hour. Mr. Haynes is a lawyer and told me about

their association for selling berries. He said the large growers of New Jersey employed a Mr. Wilkinson to sell their berries. At first they allowed him a salary of $5,000 a year. The price of berries was fixed every two weeks by a Board of Directors. Mr. Wilkinson was to keep back 5 per cent out of which to take his salary, and the first year he turned back 3½ per cent, so the cost of selling was only 1½ per cent. The next year they gave him $7,000 and expenses and clerk hire, and he turned back 2½ per cent., costing 2½ per cent. to sell. Members pay no entrance fee, but are taken in by ballot. He thought three members voting against any proposed name rejected it. Only one man from Cape Cod, Mr. Small, belongs to it, but such has been its success that many others have made application to join, among them A. D. Makepeace, the largest grower: the society has decided not to admit any more at present. In case the society is not able to supply the demand, the agent can sell for other parties, paying to the society 7 per cent. on such sales. Any member of the society can sell his own berries, but in that case he must turn in 5 per cent. to this society. Each one receives the price his own berries bring, and if he does not put up his berries good he suffers the loss. He did not know of any general losses.

I asked in case several wanted to sell at a time, what would be done; he said the agent had always had orders ahead, more than they could fill, and had so many carloads for outside parties. I think the result will be that there will be another society formed in Cape Cod, and in time all growers will be admitted, and when there is an over stock of berries they will be kept off the market, and what cannot be sold at a fair price will be given away in parts of the country where they have not yet been sold. The cranberries I saw in New Jersey all grew in a belt of timber, about 35 miles wide and 100 miles long, and in such shape that, under ordinary circumstances, they would be very liable to fire and frost. Nearly every marsh is on a stream and water abundant; these marshes are covered with dense forests, with shallow muck, and very hard to clear, much worse than the upland. I saw only a few acres of open marsh; only about 1 per cent. of the marshes in New Jersey is yet in cranberries. I would like to add in regard to size of barrels, that the society for selling berries agreed last season to use the standard barrel of Cape Cod, and I, for one, would like to see all growers come to use one standard size of barrel. I have much more, but no time to write it.

A. C. BENNETT.

THE WATER SUPPLY.

(BY A. C. BENNETT.)

Clouds, from which our rain and snow comes, are produced either by heat or wind or both combined, passing over a moist surface. I once saw clouds formed entirely by wind, which lapped the sprays from the white caps on Lake Superior and whirled it into mid air before a driving gale of sixty miles an hour. I saw the clouds quickly form and in less than thirty minutes rain was pouring down from what had been a clear sky.

At the equator of the Earth there is a belt 1000 miles

wide, where the sun's heat produces rain every day in the afternoon, clearing off at evening; literally true only on the Pacific Ocean. These are generally thunder storms and they follow the course of the sun, being directly under the sun, as the sun in winter is at the extreme southern part of this belt; it commences to rain there and each day the storm center is a little farther north, until in midsummer it is 500 miles this side of the equator. During the next six months it works back to the south again leaving periods of drought to follow in regular order, yet within this rainy belt we find deserts where no rains fall, and for 1800 miles on the west coast of South America, on the very shore of the Pacific Ocean, it is rainless, while on the western coast of North America, from the western shores of Alaska to the Columbia Valley, we get our greatest rainfall. It is easy to see the reason for this as in North America the prevailing wind is from west to east, while in South America they are from east to west. Low plains in and near the Torrid Zone are very hot. If they are open to the ocean winds their climate is moist, if not, it is dry. When warm ocean winds strike the sides of high mountain chains, it passes up the slope, growing colder and losing its moisture in rain and snow as it ascends, and at last passes over the range and down the opposite side as cold, dry wind. As our entire Pacific coast is bordered by high mountain ranges, the immense water supply which should come from the warm Pacific coast is shut off and but for the Gulf of Mexico and the Trade Winds, nearly all of North America would be a desert. The Gulf of Mexico being warm and swept by the trade winds going from east to west, become heavily charged with moisture, and not finding a ready passage to the Pacific Ocean on account of the Coast Range, they pass north. Mixing with the westerly winds they are borne east and their moisture distributed according to the force and temperature of the prevailing winds at the time, modified by the surface of the earth over which it passes.

Warm, moist air parts with its moisture by coming in contact with cold air or mountains, if it has to pass over large open tracts of country from which all timber has been cut and the sands exposed, the increased heat reflected from the earth causes the air to become hotter and it absorbs moisture instead of discharging it, so that sections of country that need rain the most get the least. There are places where it never rains and others where it rains nearly every day in the whole year. In Patagonia, fifty feet of water falls yearly on the Kasia hills, due to the abruptness of the mountains that face the Bay of Bengal on the south of Asia.

The eastern coast of North America, being bordered with a low belt of land protected by low ranges of mountains on the west, gets much of its moisture from the Atlantic Ocean.

How far the influence of the moon on the heavenly bodies affect the distribution of moisture on this earth, I do not know; it is evident the sun is the greater motive power, and the changing position of the earth, with its high mountain ranges, broad valleys and oceans, rolling on its axis 1,000 miles an hour, appear to be sufficient cause for all the effects we see. These are normal condi-

tions like a man in health, but men are not always in health, they get sick at time; but the tendency of nature is always to return to the normal condition.

With three-fourths of all the earth's surface covered with water, it would seem that no part of the remaining one-fourth need ever go dry; yet the fact that in all the ages past there have been periods of drought extending over large areas of the land and coming like sickness for a limited time cannot be denied. It is also a fact that the duration of these droughts are short, usually but a single season; if severe, then the normal condition returns and many years of normal condition come and go before one abnormal one returns. The drought in Egypt, spoken of in the Bible, lasted for seven years, but there has been none like it since.

India, with an area one-half the size of the United States, has 303,000,000 people. The great mass of the people are the poorest of earth's poor, and during the last century it is estimated that 18,000,000 have died from starvation. The present famine in India is due to the failure of the last rainy season; it is more serious than any previous famine as it covers a greater area and different provinces containing 90,000,000 people.

India, 400 years ago, was a very rich country which Columbus expected to reach when he discovered America. Its dense population has stripped it of much of its forests and even the bits of dry grass and all manure are carefully gathered and burned for fuel, returning only the ashes to the land. No wonder that the rains become less, that sections of the country are becoming barren and that the government is fast becoming as poor as its people.

Clouds may seem heavy and to be moving on a level plain, but, as they float in air like smoke from a cigar, they are as easily moved up and down or thrown to one side by currents of air as is the smoke.

When any considerable portion of land is swept by fire so that its surface is exposed to the direct ray of the sun, there is an immense amount of heat reflected from its surface, causing the air to expand and pass upward, often causing whirlwinds resembling an inverted funnel, but the photographs of these whirlwinds in the deserts show plainly that above what appears to us to be the point of the funnel there is another funnel which stands right side up and reaches up until lost in space. I once saw a large newspaper taken up in one of these whirlwinds in Wisconsin, with several smaller bits of paper. After reaching a few hundred feet in the air their circles widened as their height increased until they appeared to be swinging around in a circle nearly a mile in diameter, as the movement from west to east was slow, and they came almost directly over my head. I watched them mount toward the sky 'til one after another they all became invisible. Now, if a cloud had been passing directly over that spot it would have been carried into the upper cold region of the air and the result would have been hail. If a cloud had been passing near it, it would have been thrown to one side. This is why showers go around us when we need them the most. One small shade tree reduces the tem-

perature under it, in the mid-day sun, many degrees, preventing evaporation and direct reflection.

Much of the area of Wisconsin is sandy, and if ever it gets cleared of its forests and the sandy soil exposed to our clear burning sun, the amount of rainfall we now receive will not be sufficient, and we will then realize that we were in too great haste to secure emigrants to clear our forests.

In Minnesota all the inland lakes are drying up since settlement began. The East is to-day better supplied with timber than we are. If New Jersey should cut off her timber, in one year one-half her streams would be dry, though they nearly all appear to be spring water now.

A resolution was presented and adopted as follows:

WHEREAS, There is in northern Wisconsin a vast amount of Marsh and Sandy lands that have remained practically undeveloped, and there is good reason to believe that under irrigation and proper treatment many species of agricultural products can be raised, and with profit, and

WHEREAS, The State Experimental Station has, for the want of funds, been unable to do anything toward proving the capabilities of such land,

NOW THEREFORE BE IT RESOLVED, That the present legislature be petitioned and requested to appropriate the sum of $10,000 to the agricultural department of the state union, under such restrictions as it may deem fit, to be used for the purpose of proving the capabilities of such land.

Moved and seconded that resolution be adopted and put on file. Motion carried.

Moved and seconded that a vote of thanks be tendered to Prof. King and A. C. Bennett for their continued interest in the welfare of the association, for the work done in our interest and for their interesting communications. Motion carried.

Moved and carried that $50.00 be allowed Gaynor Brothers for the amount due them on conducting Experimental station.

Moved and seconded that the bill of A. Searls, manager of nursery, be allowed and orders be drawn for same, viz: $73.17. Motion carried.

Moved and seconded that the bill of E. P. Arpin, secretary, be allowed, viz: salary, $40.00; expenditures, $11.50. Motion carried.

The following report by the committee appointed to examine the accounts of A. E. Bennett, treasurer, was read:

We, the committee appointed to examine the accounts of A. E. Bennett, treasurer, would respectfully show to the meeting that we have made a careful examination of the treasurer's report and find the vouchers thereof duly on

file and that we find the same correct as read by him to this meeting, to wit:

The entire receipts that came into his hands were..	$303.49
He has paid out.....	253.45
There is now on hand.....	$ 50.04

Dated at Grand Rapids, Wis., this 12th day of January, 1897.

C. J. KRUGER,
JAMES GAYNOR,
Committee.

The report of Andrew Searls, manager of Experimental nursery, was then read:

Mr. President and Gentlemen of the Association—It will be remembered that in my last January report I stated that I had one acre of ground partially prepared for planting, by being surfaced with Mr. Gaynor's scalping plow, and a part of the scalpings removed and 200 loads of sand drawn upon the ground.

During last May I had the remaining portion of the scalpings removed and necessary ditches dug and dams built and connections with Mr. Gaynor,s system of ditches made.

In my plans for the marsh, I aimed to get it so as to have the beds or sections as nearly level from end to end as possible, and in order to make them so used a level in laying out the ground, so that in handling water it might be done with least possible loss of water; also I have thought best to construct the beds about 30 feet in width, exclusive of the dams. I have found in my experience that it is much cheaper to have beds of this shape than those of square shape, as it is much quicker to flood and drain, and fruit and vines are much less liable to be injured by frosts, as the water in the ditches tempers the air for some distance each side. I then had the sand spread evenly over the surface and proceeded to plant the vines. Sections Nos. 1 and 2 are planted with vines obtained from Berlin, through the kindness of our president, Mr. Kruschke, and said to be a very choice variety of bugle berry and growing to a very large size. A part of section 3 is planted with vines obtained from Mr. A. C. Bennett, and from a sample of berries exhibited here in the city last autumn by Mr. Bennett, I think can hardly be surpassed in this or any other country. In planting sections Nos. 1 and 2 and a portion of No. 3 I had the vines cut into six-inch lengths and from three to four pieces planted to the hill. I do not think it necessary when vines are vigorous to plant so many pieces to the hill, but these were so badly damaged by last winter's exposure I was fearful there would be a great many that would not grow, and as it turned out the suspicion was well-founded, as only about one in four or five grew; the rows were planted 18 inches apart, and the hills 8 inches apart in the row. In placing the vines in the ground I had them placed in a slanting or reclining position, with the lower end down in the muck beneath the sand and only about one inch projecting above the sand. Now having the vine go down through the sand and I think slightly into the muck is

very important, as when a vine is only planted into the sand, as some of them were, the first time the sand dries out, as it is very likely to do in hot windy weather, the vine will perish. I noticed some vines that had started and then wilted and examined them to see what was the cause and found the men had failed to reach the muck in placing the vines in the ground. The advantage of having only a small portion of the vine exposed is that there is more surface for the vine to take root and it is less exposed to the sun and to be whipped about by the wind, also the advantage of planting in a reclining position is that the vines throw out runners sooner than when planted in a perpendicular position, consequently take full possession of the ground much sooner.

The remaining portion of sections Nos. 3 and 4 was planted on the last day of June and the first day of July, a very late date to plant cranberry vines. We had the promise of the vines much earlier in the season, but circumstances had been such that we had been unable to get them; these also were promised by Mr. Kruschke.

In planting these vines I thought best to adopt a different plan than that pursued in planting sections Nos. 1 and 2 as the vines had made considerable growth, I was doubtful of the wisdom of cutting them up as I had done earlier in the season, so I had them planted in rows as before, leaving the greater portion of the old vine and leaving the young growth exposed. These vines done fairly well, although I am not in favor of planting in this way if it is possible to plant in the former.

In constructing the dams I made use of the material taken from the ditches and surfacings or scalpings. The dams on the south and west are 4 feet wide at the base and 24 inches in height. The dam on the west side is 12 feet in width and intended to be used as a driveway as well as dam.

The cross dams are much slighter, being but 2½ feet in width at the base and 18 inches in height, and four rods apart, and when finished should have bulkheads at either end so that each section may be handled independently, also small stops at either end of center ditches. I have not considered it absolutely necessary so far, but think it should be done the coming season.

In constructing reservoir I have thought best to make it somewhat smaller than at first proposed, and covers an area of 170 square rods, being 10x17 rods, in shape as shown in map of station, and have built a dam around it, the material being taken from the inside of the inclosure; this work was done by hand as the ground was too soft to admit of the use of teams. I think if teams and scrapers had been used the result would have been much more satisfactory, as the levers would have trod down and firmly packed the ground and prevented the escape of water; I think if there should be a favorable opportunity this season, it would be a good plan to straighten the reservoir in this way as there is a large loss of water from percolation through the porous material beneath the dam. I think there is very little loss of water from draining downwards; I also think the dam should be covered or faced with clay or sand and well trod down. I think it

building a reservoir of this kind and putting in a pumping plant it should be so placed as to make available all of the water held, and quite a portion should be held below rather than above the surrounding surface of the ground, as that is very porous and water finds its way through it if considerable pains are not taken in constructing reservoir dams. Now in order to make this water so held available, a level should be taken, and reservoir and mill should be placed on sufficiently high portion of the marsh, and on our marshes in this vicinity, where there is considerable fall, it is not difficult to do. I have found it necessary to do some weeding on the planted portion of the marsh, and have found pulling the grass to be much the better way of disposing of it. I tried the hoe, but discarded it in favor of the hands. The greater portion of the grass came up from roots left in the ground, the surface plow not having gone deep enough to take all live roots.

In making preparations for next season, I have had Mr. Gaynor's surfacing plow and cutters run over and scalpings piled into windrows for four additional sections of the size planted last year, and ready to have sand drawn as soon as sufficient snow has fallen to make sleighing. I have also had a well sunk for the purpose of furnishing additional water supply in the line suggested by Prof. King at the last January meeting. This well is sunk down to a depth of 27 feet to the coarse sand and broken rock that carries water very freely. This well may be used some time in the future to test the capacity of a deep well for furnishing water for an engine, by merely piping the additional distance to the clay, only about 5½ feet, and then drilling down to such depths as the Association should think best. I have also put down the point I reported as to have had made at the August meeting, for the purpose of reserving the flow of water from the well sunk last winter and that was probably lost by caving in. This point increased the flow somewhat but did not meet my expectations. The larger of the two wells at the Station has given me considerable trouble during the past season by throwing over sand into the well in which the pump is placed. By way of the syphon I think I have overcome that trouble now and we will have no more bother of that kind.

I think there should be a large excavation made in connection with wells of this kind to act as a kind of reservoir, so that when the wind is not blowing water would be accumulating, and have it to draw upon when days of very high winds occur. This would not be very expensive, as it might be done with teams and scrapers during moderately dry time, and when the wind would run the mill.

ANDREW SEARLS.

The annual report of James Gaynor on Experimental Station No. 1. was submitted as follows:

To the Members of the Wisconsin State Cranberry Growers' Association, Gentlemen:—There are now planted at your experimental station 146 sections. We planted this year at the station 51 sections. The vines for these sections were received as follows: From Mr. A. C. Bennett, on his

return trip from the East, we received a box of vines selected from the varieties he found at Cape Cod, Mass., and at Trenton, New Jersey, selected mostly from the marshes of Mr. Small and Mr. Rider, in all 25 vines, consisting of seven varieties. From S. H. Cummings, of St. Joe, Mich., we received seven vines, reputed to be of his best Michigan varieties. From Ann P. Carpenter of Pine River, Wis., we received six varieties. These were selected from her planted marsh, and although there were no berries accompanying them by which their variety might be judged, they are probably of the Berlin type. We have two sections of native vines the variety of which is not specifically known. We planted two sections of vines received of E. P. Arpin, which were taken from the vicinity of Red Lake, Minn. From Chas. Briere we received three sections; these are from his planted marsh, from vines originally brought from Berlin, Wis. We planted six sections selected from the Bennett boquette presented by him to Geo. N. Wood, which were selected from the vines planted on his marsh in Wood county, which were originally brought from Waushara county. The berries from these vines were very fine, and we have saved the seed and expect at the proper time next spring to plant them on one or two sections for seedlings. We received a sample of berries from Henry Shaw, of Waterville, Nova Scotia, in August last, taken from his crop of 1895, and of these we saved the seed, which we planted in two sections soon after receiving them. While we do not think that it is the most favorable time for planting seed, it is yet to be seen what success may be expected from seeds planted at that season. The three sections of seedlings planted from berries exhibited to the association by Tuttle at its meeting in 1894 have done exceedingly well this season and have thrown out large numbers of vigorous runners. All the vines at the station this year have shown a fine growth. The development of those vines during the years 1894 and 1895 was injured seriously by the excessive drought of these summers and the exposure in the winters that followed, and we may reasonably expect to be able to present at the next annual meeting, a sample of berries from all sections that are over two years old. The exposure of last winter destroyed all the fruit buds, and we have no berries to present to the association as required by our contract.

We would finally urge each cranberry grower to send us a sample of such varieties as he may find on his marsh: three vines of each variety will be sufficient, the larger the vines the better. They can be packed in a small paper box with wet moss or a damp rag and well wrapped in paper, and send it to Gaynor Bros., Grand Rapids, Wis., with a short description of the peculiarities noticed in each variety. It would be better if some of the fruit be left on the vines. Each one sending us a vine to plant will have the right to claim the first years cutting from the section, after the section is fully covered with vines. A record of the name and post-office address of each contributor is kept at the station with a history of each vine. All of which is respectfully submitted.

JAMES GAYNOR.

MEMORIAL TO CONGRESS.

WHEREAS, The cranberry industry is injured by the tariff imposed on that fruit by Canada, and also by the importation of the European cranberry into this country free of duty under the name "Lingon berries,"

THEREFORE BE IT RESOLVED, That it is the conviction of this association that the European Cranberry should be included in our next tariff schedule, and that a reciprocity trade treaty with Canada should open up that country to the free importation of our berries.

BE IT FURTHER RESOLVED, That copies of this resolution be sent to our representatives in Congress requesting them to secure if possible the desired legislation.

The above resolution was adopted by the association January 12th, 1897.

E. P. ARPIN, Secretary. H. O. KRUSCHKE, President.

There being no other business before the association, upon motion duly made and seconded, meeting was adjourned.

E. P. ARPIN,
Secretary.

The following communication was received by the Secretary too late to be read at the annual session, and is therefore entered with the published proceedings:

Remington, Wis., Jan. 10th, 1897.

E. P. Arpin, Sec'y.,
Grand Rapids, Wis.

Dear Sir:—Your notice of the meeting of the Association to take place on the 12th inst., received. I have felt very anxious to meet with you on that day, but am now satisfied I will not be able to, which I very much regret, but my health is such that it will be impossible for me to get away from home.

I have been hearing during the last few months of the improvements you have been making on the Arpin plantation and the marshes in that vicinity, which has afforded me great pleasure, as in my judgment they are in the right line. It is a step in the direction I have always thought the right one in order to cultivate cranberries successfully on those marshes. By proper measures and care, you can now avail yourself of the surplus water from many townships of land to the north of you, with comparatively little expense and no damage to any one by the taking of it, but an absolute benefit to all dwellers on the streams below, as the arresting and stirring up of the water near reservoirs at proper times will lessen the great floods at the times of high water; and by gradually draining off and percolating through the ground in the times of drought will keep the streams up and make them more even and durable the year through.

I am now very anxious to see a proper and thorough system of reservoirs established and maintained. In my opinion at least 25 per cent. of the surface of the earth in the vicinity where cranberries are cultivated, should be

covered with water and exposed to the atmosphere and sun to evaporate, moisten and soften the atmosphere at all times during the season when vines and berries are growing, in order to secure the best results. You will always find the best vines and berries along the ditches and close around the open water ponds. For sound, healthy growth the atmosphere in which they grow must be softened and tempered by open water near by, hence in wet seasons we get the soundest and best keeping berries. It is not necessary that the water be kept in large reservoirs high above the general level of the marsh for this purpose; in ditches and little ponds and pools standing from 4 to 24 inches below the general level of the marsh is preferable, and these should be scattered thick all through the producing field, and in these the water should never be allowed to get higher than 4 inches below the surface of the ground during the growing season, except to protect against frost, worms, ets.

Large reservoirs, containing only a few acres, as opportunities offer along the main ditch, and on every man's plantation, should be provided in which large bodies of water can be stored and held above the general level of the marshes at as great depths as can be got and held with safety, from which water can be drawn in times of drought to replenish and keep at a proper height the water in the ditches, small ponds and pools scattered through the producing acres. The deeper all these waters can be carried, and the larger the reservoirs can be made, the better, even to a dimension large enough to be called a lake. It is desirable that all be so deep that they will not freeze to the bottom winters; they can then be stocked with fish, which will help to keep the waters pure, be a source of no small revenue and furnish much pleasant sport and pastime to the families interested, as well as an inducement to people seeking recreation to visit and view the oddities and beauties of cranberry land.

These large reservoirs should be filled to their full capacity every time there is a raise of water in the streams depended upon as feeders, whether they will take much or little. A small dredging machine, which can be obtained for about $1,000, should be got and set to work making heavy and solid embankments around all reservoirs and excavating deep places to which fish can resort in times of drought and hard freezing, and which can be used in digging and enlarging main ditches, as time and experience shall develop their necessity. Such work can be very cheaply and much better done with such a machine than any other way; it is, in fact, the only way such work can be done well and substantially.

A company should be organized and all interested in the business in any vicinity that can be brought under our system should join and help carry on the improvements, and have a voice in their management in proportion to their interests.

I wanted very much to meet with you at this session, to discuss this subject and get the views of others, but my bodily infirmities order otherwise.

I am aware that these spasms, pains and aches of mine are the jingling of the bells that soon may call me to the

doom awaiting all, but I hope that by care, caution and quiet I will be able to delay the final summons long enough to see cranberry culture well enough under way in the right direction to insure its final success.

A little more work in the right direction and this region will become noted as containing acres of the greatest value as wealth producers that can be found in the United States. Yours truly,

H. W. REMINGTON.