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Proceedings of the third annual meeting of the Wisconsin State Cranberry Growers' Ass'n, held at Grand Rapids, Wis. January 13th and 14th, 1891. 1891

Wisconsin State Cranberry Growers Association
Grand Rapids, Wisconsin: Reporter Print, 1891

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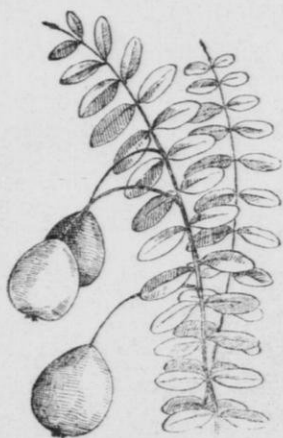
PROCEEDINGS

—OF THE THIRD—

ANNUAL MEETING,

—OF THE—

Wisconsin State



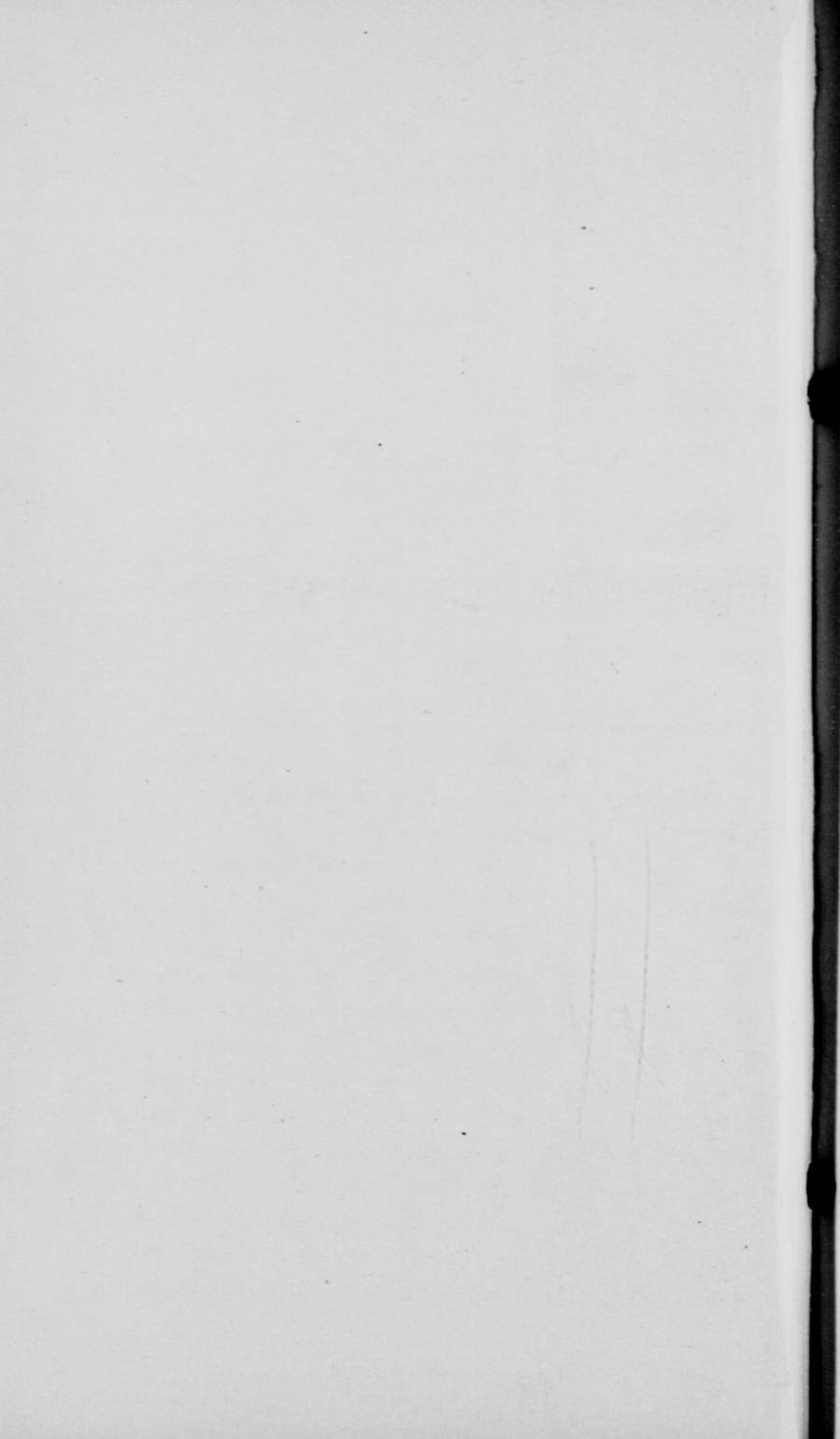
Cranberry Growers' Ass'n.

—HELD AT—

GRAND RAPIDS, WIS.

January 13th and 14th, 1891.

GRAND RAPIDS, WIS., REPORTER PRINT.



PROCEEDINGS OF THE FOURTH ANNUAL

—MEETING OF THE—

Wisconsin State Cranberry Growers' Asso'n,

—HELD AT—

GRAND RAPIDS WIS., January 13 & 14, 1891.

Meeting called to order by President, J. A. Gaynor.

Minutes of August convention read and approved.

PRESIDENT'S ADDRESS.

Every useful industry has for its ultimate end and aim, either directly or indirectly, the production of human food or human shelter. The industry our society represents, has for its immediate purpose the production of human food in a form that is pleasant and healthful to a degree unsurpassed by any other fruit. We have no proof that any new species of plant or animal has come into existence since the creation of Adam; and yet it is a singular fact that many of the best articles of human food have become

berries cheap to middlemen who are now selling them dear.

We have lost more than half of the profits that we might have realized if we could have in some way connected ourselves more directly with the consumer. This, and the following subjects, not on the program, I would respectfully call to your attention:—

Would it not pay us to grade our berries according to size?

Would it not pay us to combine to maintain a large cold storage warehouse from which we could continue to ship during the winter months?

Could we not secure a canning establishment in which our small berries, and frozen berries that are sound, could be put in a marketable form instead of being a total loss to us?

Reading of statistics was postponed until the afternoon session when more growers would be in attendance.

The report of committee on legislation being in order Vice President Kruschke, took the chair, President Gaynor being chairman of the committee. After some discussion as to whether the report should not be held until the second day's session, it was decided to hear the report then, and take up the discussion on the second day.

Chairman Gaynor then proceeded to give a synopsis of the present law showing what rights each land owner had; and reported that the committee after mature deliberation, and from getting the views of many growers, had decided against making any changes in the present law, as many growers having made improvements under the present law any changes that would benefit the others would seriously

damage them.

After some discussion a committee consisting of J. A. Gaynor, Wm. L. Megow and T. E. Nash, were appointed to watch and investigate any bills that might be introduced in the legislature relating to drainage.

Moved and carried that no reports of these meetings be placed in the hands of persons not members of the association. It was afterwards modified leaving it to the discretion of the secretary but not allowing promiscuous distribution.

Meeting adjourned until 1:30 P. M.

AFTERNOON SESSION.

Meeting called to order at 1:30.

REPORT OF SECRETARY FOR 1890.

Mr. President:—

What was the matter with our August estimate? An increase from forty-seven to seventy-four thousand barrels is, I think, a trifle too large an August under estimate!

Reports received September 1st seemed to indicate an increase over the August estimate of a little over ten per cent., and I am confident that had we had an ordinary Wisconsin autumn the actual shipments would not have greatly exceeded this amount. But the fruit continued to increase in size and the frost was busy in some other locality until the 'ast berry was picked.

From Meadow Valley south and west, the crop did not exceed the estimate to any great extent, but north and east every station kept raising the estimate

every time I heard from them. The report that was to have been published on September 20 was a failure, only three growers reporting.

As soon as I was through gathering I sent circulars out asking for reports of actual amounts gathered. The reports soon began to arrive and kept coming for over a month, when it was so late that the fruit was all sold and mostly shipped, consequently I did not feel that any benefit would be conferred on a large majority of the growers by printing and mailing the report. I mailed an August report corrected to date to all asking for them.

STATISTICS BY DISTRICTS.

DISTRICTS.	AUG. EST., BBLs.	AM'T SHIPPED
Centralia	200	1 000
Bearss Station.....	7 000	13 467
Babcock.....	4 300	4 890
Daly.....	3 000	6 715
Port Edwards.....		1 215
Meadow Valley	3 000	5 069
Beaver	1 000	2 650
Mather, including the Goodyear branch...	5 000	5 980
Norway Ridge.....	1 100	2 190
Hitchcock	100	200
Valley Junction.....	1 100	960
G. B., W. & St. P. Ry.....	5 400	16 243
C., St. P., M. & O., estimated.....	800	800
Deuster and Necedah branches.....	5 100	3 500
New Lisbon.....	200	150
Berlin and surrounding points.....	6 000	7 000
Northern Wisconsin.....	3 000	3 378
Total.....	46 300	74 407

The Treasurers report showing a balance on hand of \$22.46. The accounts were audited by Messrs. Searles and Prothero, pronounced correct and the report accepted.

J. H. TREAT, Treas.

The next order of business being the reports of special committees. Mr. A. E. Bennett was called upon to report on the best method of planting.

THE BEST METHOD OF PLANTING CRANBERRY VINES

The cranberry men differ in opinion on most of the points relating to the culture of the cranberry, but agree very well on one point, that they must have vines to produce berries, although some seem to be getting very good crops among sage brush and alder, still more of them are of the opinion that they would raise more berries if they had less brush and more vines.

Now the question arises, how shall we increase our vines? and on that point we all differ. One will say, dry your marsh and the vines will soon come in and spread over the whole ground. Another will say, if you get your marsh dry to raise vines, the brush will grow better than the vines and the worms will eat your crop of both vines and berries. Others say if you have not vines enough, plant some, and if you have not enough vines to plant with, buy or borrow from your neighbor, or get them from Berlin, New Jersey, or Cap Cod, as the berries from those sections command a better price and are a larger and nicer berry. But I believe our own native vines are the best for us to plant, and I believe they will raise as large and as nice fruit and a better keeper than we can raise from any eastern or Berlin vine. The shape of the berry does not matter so much as the size and color.

Nice large berries of good color and well put up will sell where ever cranberries are wanted, and

bring a good fair price. We have on our marsh two varieties of Eastern berries. The Early Blacks (the earliest berry in the east) and the McFarland, said to be the largest berry grown on Cape Cod. The Early Blacks will be four years old next spring, they produce a nice bell shaped berry not so large as our native variety, but I have not noticed that they ripened any earlier. The McFarlands have been planted but two years next spring, and were planted in rows 18 inches each way, and only the tops of the vines were used in planting. They produced a few nice large berries last year, but of course have not been planted long enough to determine whether they will be an improvement on our native berry or not. I think the condition of the marsh and the thickness of the vine has something to do with the size of the berry.

Our largest berries this year were raised on vines planted two years ago last spring. On our older planting where the vines are thickly matted the berries are smaller. Having determined which variety of vine we wish to plant, the question arises, when and how shall I plant to obtain the best results? The best time to plant in this section is during the months of April and May, although the vines may be planted at any time of the year when the marsh is suitable. Vines planted after the 15th of June are but little better than those planted the following spring. Vines planted during the summer months are liable to die from exposure to the hot sun and dry weather. Still the cranberry vine is very hardy and will live under treatment that would be fatal to almost any other plant. We have had them live transplanted in July and August with blossoms and

berries on. Some recommend planting in the fall, but the vines cannot grow till spring besides suffering from the exposures of the winter if not well flooded.

In the East they plant the clean vine in hills or drills 18 inches apart. This I think is all right provided you keep the ground clear of all weeds and grass. We have five acres planted in this way, they will be two years old next spring and some of them have produced runners over three feet long. One acre of this is planted with eastern vines, and one barrel of vines planted the acre. The marsh is sanded two inches deep. The main argument against this method of planting is that it takes too much time and hard work to keep the ground clean till the vines form a solid mat all over the ground.

Cuttings have been sown with success in the east and also on Mr. Gayner's marsh. On Mr. Gaynor's marsh the vines were mowed with a scythe or pulled with a hook and gathered into large piles, they were then cut with the bog-knife into pieces from one to six inches long, and scattered thickly over the marsh. The vines made a good growth and are looking well.

Another method and one which I think is the best and will probably come into general use in the west where large tracts are to be planted, consists in pulling the vines with a bog-hook, first cutting the patch of vines you wish to pull from into squares of 18 or 20 inches with a sod-knife, then take all the vine material you can with the hook being careful to separate all brush or material that would injure the growth of the vines. Put the clean vines in piles and they are ready to be taken to the ground you wish to plant. Another way of procuring the vines

is to mow them off with a scythe as close to the ground as possible, the brush will then have to be picked out as they are placed in the piles. The vines are then to be taken to the ground you wish to plant. Then scatter them over the ground as even as possible. Have the ground moist and if convenient one inch of water above the surface. If your ground is clean and the planting done in April or May, they do not need to be pressed into the ground. If the planting is done later, they should be pressed into the ground either with the foot when planting, or with a roller after your piece is planted.

We have a piece of marsh planted after this method, containing seven acres, sanded two inches deep, that has been planted two years last spring, which produced a crop last fall of over fifty bushels of nice large berries to the acre, or 350 bushels on the piece. They were the largest berries we had.

The cost of planting vary from five to twenty-five dollars per acre, depending on the distance you have to bring your vines, the thickness of the vines you have to pull from, and the amount of brush you have to pick out of the vines. I think ten or twelve dollars would be about the average price.

They may be planted in this way among moss and grass. The thicker you plant the quicker they will produce a crop of berries. In the east they call this the slip-shod method of planting but like the western farmer we may not get quite as large crops to the acre, but our acres far outnumber theirs, and I believe the time is not far distant when Wisconsin will produce more than half of all the berries used in the United States.

Mr. Bennett's paper was discussed, other growers

giving their experience in planting and the results attained. Mr Marone stating that he had found that if short cuttings were used they should be sown on the water and water be kept over them or nearly so, the first season.

Mr. Bennett thought keeping the ground moist would promote a healthier growth than to keep the water over the surface. The discussion branched into whether mowing heavy vines was a benefit or a damage. It was generally conceded that mowing it in spring not later than the 15th of June was beneficial to old woody vines and that vines so treated would produce finer berries and an increased crop in two or three years. While vines mowed during the hot weather of late June and July were very liable to be nearly if not entirely exterminated.

H. O. Kruschke then presented a paper giving the result of his experiments with injurious worms with best methods of preventing their ravages as follows:

OUR INSECT ENEMIES.

Mr. President:—

I have at this date but little to offer, having tried to obtain facts, and facts only regarding the propagation and transformation of our insect enemies. When we have positive knowledge as to how they are propagated, remedies for their destruction will be readily found. I have so far devoted my attention only to the fruit and vine or fire worm. I commenced to gather berries which gave evidence of being infected by worms. I had prepared a box with cranberry soil and vines into which I dropped the berries, covering them with a wire screen. This I

continued as long as I found such berries. I left them out of doors until the end of October, since which time they have been in the house where I keep flowering plants. I kept a good look out for moths, so far none has appeared.

On December tenth I concluded to investigate a little closer, I stirred the ground lightly and brought about a dozen of cocoons to the surface. I put in hundreds of worms, but perhaps they are deeper down, I only stirred to the depth of $\frac{1}{2}$ inch, not wishing to jeopardise unnecessarily the final success of my experiment. I brought only one cocoon with me.

Mr. White in his book on Cranberry Culture says he has not been able to rear them in the house, and cannot give a true description of the moth. I shall, however, patiently continue my investigations until I meet with success.

I had nearly despaired of finding any vine worms, when I had occasion to go to Necedah by team, I discovered plenty of them on the Spencer marsh. They were at that date on the decline, still found all I cared to experiment on. I treated them the same as the fruit worms. I have not attempted to find their cocoons fearing on account of their minuteness I might destroy many in searching for them.

I am lead by my experiment to believe the moth will not appear until spring. According to authorities, quoted by Mr. White, the moth hatches within ten to thirteen days after having reached the pupa state. My experiment may be at fault, still I believe we have nearly everything yet to learn concerning our insect enemies.

REMEDIES.

I can only suggest remedies being still in the dark on this subject.

1st. Allow no brush on your marsh, certainly none to protrude above your flood.

2d. Allow no cranberry vines in your immediate vicinity unflooded. If you cannot flood them remove them. They are certainly the breeding places of our insect enemies.

3d. Also allow no vines on your dams above high water mark. When these conditions are secured I think insect ravages will be a thing of the past.

Mr. Kruschke, then produced the cocoon above referred to, it was opened and disclosed the ordinary fruit worm which showed signs of life as soon as exposed to the warm air.

Mr. Gaynor. This is the only scientific work in this direction that we have seen and hope that Mr. Kruschke will follow it to the end.

A discussion followed by Mr. Treat who thought winter flooding would prevent all or most of the damage done by the vine and fruit worm.

C. J. Kruger and others, who have protected their bogs by the use of the torch, killing as high as 250 millers with a single torch in one evening.

Mr. Gaynor. I think indiscriminate killing of moths may be detrimental to the grower, as there are, without doubt, as many kinds of millers that are beneficial as injurious.

Andrew Searles, who was appointed to investigate what degree of cold, or heat, will kill vines reported, that he had had no opportunity to make

investigations that would be conclusive.

Mr. Megow 32° below zero will kill in winter, and 85° above will kill new shoots on settings.

Mr. Bennett. Vines kill on Cape Cod at 2° below. The condition of the atmosphere is what kills the vine not the degree of cold.

A. C. Brooks. More vines are killed in February and March than in other months, because the sun has melted the snow away from the high bunches, leaving them exposed to sun, wind and cold.

Mr. Gaynor. At what temperature will fruit scald?

Mr. Scarles. I think that depends considerably on the age of the berry, the most delicate condition lying between the small set and nearly the full grown berry. I think the reflection of the sun on the water will scald fruit hanging as high as three inches above the water.

W. S. Braddock. Thinks that reflection causes considerable damage to both young shoots and fruit.

Mr. Gaynor. Thought that a single drop of water might concentrate the sun's rays and create a greater degree of heat than the direct rays, but reflected rays from a level pool would not be warmer than the direct rays of the sun.

Mr. Megow. I placed a thermometer down near the water when I saw berries were scalding and it registered 120 degrees when the temperature above was only 70 degrees, therefore came to the conclusion that the reflected rays were the most damaging.

Mr. Kruger. Having been appointed to report on the best method of preparing ground for planting

said, "my experience has been mostly in re-claiming foul brushy marsh which I do as follows: First, mow the brush and burn or remove them then cut with a sod-knife, the same as for ditching take out the first sod and then turn the next into the hole leaving it bottom side up, follow across the patch of brush you wish to turn leaving spots of clean vines in their natural state Plant by scattering the vines over the surface and press or spat them down with a fork or foot; where it is desired to remove the sod entirely, tools are made which cheapen the cost very much but turning over can only be done by hand. No brush or willows have made their appearance so far, do not press the vines too deep into the soil as the lower part will rot and I have some planted deep, four years old that do not look nearly as well as those two years old which were simply spat down.

Land prepared in this manner requires deeper drainage than ordinary natural bog. I prefer a ditch deep enough so it will always contain water, to a shallow ditch that is dry the greater part of the dry season. The cost of preparing ground in this manner entirely by hand will not be far from \$35.00 per acre.

Mr. Gaynor, Stated that about September 1st he measured berries on the vine, and ten days later measured the same berries and they showed an increase of 1-16 of an inch in diameter or about 42 per cent. in bulk.

The Secretary showed samples of berries picked on August 27th and September 8th, September 28th and October 13th with sauce made from fruit of each date, to try and convince the advocates of extreme late picking, that an early picked berry was finer

looking, better keepers, and would also make sauce that was fit to eat.

The chair appointed a committee consisting of Messrs. Kruger, Megow, and Kruschke to prepare a program for the next annual meeting with instructions to report the subjects and to whom assigned on the following day.

Officers were then elected for the ensuing year as follows:

President—W. S. Braddock, Mather, Wis.

Vice President—C. J. Kruger, Dexterville, Wis.

Secretary and Treas—J. H. Treat, Meadow Valley, Wis.

Members of Executive Committee—G. H. Kruschke, Deuster, and J. A. Gaynor, Grand Rapids.

Meeting adjourned until 9 o'clock A. M.

WEDNESDAY MORNING JANUARY 14th.

Meeting called to order by President Braddock.

Mr. Braddock.—Gentleman after deliberation I have arrived at the conclusion that you have made a mistake in electing me to this office I have had so little experience in cranberry growing that you will not be able to extract any such amount of valuable facts from me as you have from Mr. Gaynor, think you should have elected Mr. Bennett who has all of the requirements necessary to make a good President I can only do the best I can.

The committee on program for the next annual meeting reported the following topics and assigned them to members whose names are set opposite:

1st. Cost per barrel of producing, Harvesting

and Packing Cranberries—R. C. Treat.

2d. Territory not Sufficiently Supplied with Cranberries.—G. H. Bacon.

3d. How best and most Economically to Clean and Barrel Cranberries.—J. A. Gaynor.

4th. History and Development of the Cranberry Industry in Wisconsin to the Present Time.—C. J. Kruger.

The report of committee was accepted and the committee discharged.

James Gaynor presented a paper on the effects of heat and moisture on vines as follows:

HEAT AND MOISTURE.

The agencies of nature are few in number, but far reaching in their multiplicity of effects. We see a natural law in a single case, and in the next case that comes before us, we fail to recognize it. We see the wiggler in the rain barrel change into a mosquito, and think it singular, because we have not observed this change in other insects. On closer observations we conclude that this change is the law of all insect life, but we fail to see that, in the case of the frog, it is the workings of this same law that changes a herbivorous fish into a lung breathing carnivorous quadruped; that changes the hair covered gosling with its sharp thin voice, into the feathered goose with a coarse heavy voice, and the beardless boy into a bearded man.

We see the law of sex in animals, but fail to grasp it in plants. We know that our domestic animals do not begin to bear, until they are about to complete their growth; but we fail to recognize that it is the same law that makes the thriftiest growth in plants, incompatible with a heavy crop of fruit. Now

if you will reflect in this line of thought, you will see that we are apt to look too narrowly at effects, and fail too often to grasp the broad underlying law or cause to which a multiplicity of diverse effects may be traced.

If you have caught my meaning you will not hesitate to agree with me when I say that water is Nature's cart, and heat is her horse.

Passing over the ocean currents, the formation of continents and islands, the moving of the mountains into the valley, the mighty rivers and the roaring tempest, to the gentle currents that carry nourishment to all parts of the body of the animal and the plant, and in them all, you see that water is Nature's cart, and heat is the power that moves it. You may think that plants are not endowed with the power to move because growth is about the only vital motion to which most plants are subject. But this most important motion is more dependent on heat and moisture than on all other agencies combined. I would therefore urge upon you that when you see that your vines fail to thrive, do not hunt for the cause in moon signs or mysterious undefinable properties in the soil, but see if they have the proper supply of heat and moisture. If they are not scalded with water or wilting with drouth you can rest easy on that part of the consideration, and attribute their feeble growth (their only kind of motion) to a lack of heat. Neither the leaf nor the root of our vines will show signs of life and activity below a temperature of 60 degrees. Many of our wet compact marsh soils remain below that temperature for all but a few weeks in midsummer.

If you know how to use the thermometer on

such a marsh you can prove what I say. By repeated experiments it was found that cream would churn best at about 64 degrees, and, that much above or below that temperature, the butter would not come. Before the fact was known the failure of the butter to form was attributed to all sorts of mysterious and mythical agencies. I often think we are so given to hunt for mysterious causes, that if we could be set back a few hundred years we would be hanging some witch for preventing our vines from thriving. When you have learned that the want of heat is the cause of the failure in growth you will inquire; How can we warm our bogs?

The laws of the transmission of heat is more neglected in teaching natural science than any other branch of equal importance, and if I should attempt it here, I would probably fail to impart to you much practical information. I will give you a few hints however, that may lead you to think and study further, and then I will close.

The source of all heat is the sun. This heat is imparted to the water, and the surface of the soil, and from the soil to the air. Most soils are poor conductors of heat, and unless the heat can be carried downward into them by the air or water, it will not penetrate to any considerable depth, not usually far enough to warm the soil down to the roots of the vines. You may warm your wild marsh to good advantage by flushing it with water that will stand on the surface in scattered pools that will grow warmer under the sun's rays, and transmit their heat to the moss rooted vines standing in hummocks around them, or

You may warm it by stripping the surface of the

bog bare of the vegetable blanket that covers it, exposing the soil to the sun and drying it down until the warm air penetrates it through the pores the water previously filled. This is the method the agriculturist relies on.

The same blanket that keeps a man warm will keep a chunk of ice from thawing rapidly on a hot day, and the worst possible condition for our marshes is to have a blanket of vegetation between the soil and the sun, and the worst stage of water for the blanket covered marsh is to have the water a few inches below the surface where the sun cannot reach it, but where the cooling influence of its evaporation is felt all over the moistened surface.

If these few suggestions will lead you to observe and make experimental tests to prove what I have said, I will have accomplished the purpose of this short article and I shall be satisfied.

Mr. Bennett then presented the following on the same subject.

Mr. President, and members of this society:—

During the past year I have been where I have seen a greater variety of conditions under which cranberries were grown, than ever before. I have also been more deeply impressed with the importance and profit of raising a larger berry to meet the demands of the coming generations, and a future market.

So long as the world stands the pickers will prefer to pick larger berries, the grower prefer to raise them and the jobber to handle them. Large berries are always saleable when others are a drug on the market. The question, then, as to how they

can be raised on the vines we now have, becomes one of vital importance.

There are over fifty experimental stations in America, scattered from ocean to ocean, and from the Gulf of Mexico to the Polar Sea. They are under the charge of men of experience, and devoting a vast amount of time, patience and capital to experiment with all kinds of grain and fruits from all the nations of the earth. There are also any amount of private individuals making tests all over the land. We live in an age of facts which are scattered thickly about us—new and fresh—we do not need to search the dusty leaves of ages past. I used to think we should study nature and immitate her ways. But when I see man produce two tons of hay where nature produced only $\frac{1}{2}$ a ton, produce 100 bushels of corn where nature produced $\frac{1}{2}$ a bushel, a ton of grapes where nature produced 100 pounds, 100 bushels of nice apples where nature produced 2 bushels of thorn apples. I hesitate to continue to blindly imitate all her ways. Even the fish in the hands of man are made to produce and hatch 175 eggs out of a possible 200 while the fish left to nature's ways only produces 1 fish on the average from 200 eggs. In 10,000 ways we see man's mastery over nature. Then let us gather up the facts from every source and advance with the age in which we live.

My own experience so far in raising cranberries from eastern vines has not been very satisfactory. The vine does not seem to be so hardy as our own, and the berry does not equal the ones produced in the east and I doubt if the berry is in any respect equal to our own if given an equal chance, besides

nestle on the bottom for warmth. To them the ice house is bottom side up the heat comes down to them and the cold goes up to form the ice above. Place frozen potatoes, apples, eggs, cranberries or any other frozen substance in water and see how quickly the frost will leave them and form ice on their surface never on the bottom.

I said two years ago that within six or eight inches of the surface of the earth nature produces the food for nearly all the products that grow upon the surface of the earth; and they all take their meals in this kitchen, with walls only 6 to 8 inches high. This the warmth of the sun, the air and water, must penetrate and the gasses which are the smoke of this kitchen fire must escape, otherwise all must starve. If we flood this kitchen with water we exclude the air and the chemical changes which were preparing the plant food stop at once and large forests and every living green thing starves to death.

I observed this fall that the cranberries grown on the small marshes even 200 miles north of here were much larger than the berries grown in our large marshes here. Our marshes being like a vast lake requires half the summer to warm up, while the small marshes like our shallow ponds get warm much sooner. Then again the smaller marshes get dry earlier in the season thus permitting air to penetrate early among the roots which greatly hastens the warming process, for while a tub filled with cold water would require many an hour of sunshine to warm it, the tub if filled with air only would be warmed in a single moment.

From this it would seem that to drain early and drain deep, and to keep off all outside cold water,

would be the proper course to increase the size of the berry. But such a course requires the utmost caution, for if the vines are rooted only in the moss, to drain deep, while it would not be as dangerous in early spring as in midsummer, yet it would be taking great chances of loosing the entire crop, vines and all; and it would be better to accept of a small berry than none at all. If the vines are rooted in the muck, and the marsh has been kept wet for several years the roots run very close to the surface, and it will require great care to so regulate the water that the greatest amount of early heat can be secured, and the roots be encouraged to run deeper.

I once asked a Cape Cod grower, of long experience, the question: How far below the surface would you keep the water to grow a crop of cranberries. He looked at me with apparent surprise, as much as though I had asked him if they did not grow some of their largest berries on pumpkin vines. But he suppressed his emotions and replied. "When I think my vines need more water I let it on if I can." Now, most of us are farmers or have been, and if not, we can all tell when the wheat, corn, oats or grass needs more rain or water and none of us would think for a moment of holding the water under them at any particular depth below the surface for the entire season.

If the marsh is well sanded and the vines well rooted in sand it will absorb a greater amount of heat and at the same time admit of being drained to a greater depth without danger of loss of the fruit or vine; then with sufficient supply of water in times of need the vines can be started early and be kept steadily growing until, I am confident, a berry

can be produced on the vines we now have, full double the size of our usual product.

Our corn is all nubbins some years, while other years on the same ground and from the same seed we have nearly all large ears. Both years they started alike but a drouth checked the growth or a surplus of rain drowned out the shallow kitchen and spoiled the soup. In either case the result is the same,—the loss of a week or more of growth, and the product is all nubbins one year and all large ears the next. We see this same thing repeated year after year, with all kinds of fruits, grain and vegetables. The law is universal.

That there are many varieties of cranberries, some much more desirable and larger than others, cannot be denied, yet they all require essentially the same conditions to reach a perfect development.

Last winter we flooded deeper than ever before. During the following summer we observed that the upper part of each section, which had not been so deeply flooded as the lower part, kept ahead until fall and produced the best results. The natural conclusion was that we had flooded too deep. The facts were that in drawing off the water the upper portion became dry and porous like a sponge, admitting the warm air, and getting this warm air in about the cranberry vine in a single day, while the lower part of the section remained saturated with cold water for a week or more. This showed the importance of having more thorough drainage at the lower side of the sections.

We had a ditch along the upper edge of the sections with a dam above the ditch by which the cold water was shut off and from this ditch a suffi-

cient supply of water was supplied to keep the vines on the upper side of the sections from becoming too dry, but for this ditch with its water supply, there is no doubt but what during the hot summer months the upper part would have become too dry and the lower part of the sections would have gained on the upper and in the fall have shown the finest crop and deep flooding would have received the credit for it.

I understand that one of my neighbors who piled his scalplings in rows and planted vines between the rows greatly increased the size of his berries, in this case the surface heat was greatly increased, at the same time the cold water from the vast body of wild moss covered marsh was prevented from passing over it. The warme marsh water sank below the surface and passed off gradually at the same time producing a warm, moist atmosphere very gratefully received by the cranberry vine which it returned in larger fruit worth an extra dollar per barrel on the market which is always easy to sell. We are yet learning our A. B. C's while heat goes up in air and down in water there is a limit beyond which it does not pass. If we could place ourselves in mid air from 125 to 300 feet above the earth we would find a point where there is neither dew nor frost—above this is eternal cold as far as man has gone. Heat goes down in water so slowly that its rate of motion has never been measured and the depth to which it goes is unknown, but if we could trace the waters of our hot springs to their lowest depth and the gulf streams of our oceans to their greatest depth we might find there the accumulated heat of ages which went down there from the surface of our marshes,

lakes, rivers and oceans.

The warmer air too high above us goes;
 The warmer water too far below us flows;
 We can only catch the passing sunbeam
 And hitch it to the pond or stream.
 Or quicker in the dryer marsh it goes,
 Early warms the dormant roots, and the larger berry grows.

Mr. Hackney failing to report on the subject assigned him *i. e.* "Varieties of Native Vines." a discussion followed which resulted in the following resolution being offered by *Mr. Gaynor*.

Resolved, that a reward of Ten Dollars be offered by the association to the grower showing not less than one quart of the best distinct native variety.

Mr. Kruschke offered an amendment that the contestant give date of picking, maturity, etc., which was accepted, and the resolution passed.

Mr. T. E. Nash said: I have not been on the marsh at all during the year, and do not know any more about whether every bud contains the rudiments of a blossom than I did last year at this time.

Mr. Geo. F. Witter Jr. offered a resolution that the committee appointed to keep a watchful eye on drainage legislation be instructed to oppose any change in the present law that would effect cranberry interests.

Mr. Bacon I object to that resolution as I think some change in the present law is badly needed. A man can now handle surface water as he pleases turning it away from the man owning the land below him thereby ruining his land.

Mr. Witter: It seems to me that it would be a great injustice to the grower who has made large improvements under the old law buying large tracts

of land of no value to him except as a source of water supply, if any change in the law should make him tear down his dams and deliver over to his less fortunate neighbor all of the benefits that he has acquired.

Mr. Bacon: Nature gives the land the water, men buy the land having an abundant supply of water with the expectation that the ordinary conditions will remain the same when some man steps in and buys the land lying above him using the water and then instead of allowing it to follow in its natural course, turning it off, in another direction, making your investment worthless. The only modifications needed is to make the same rule apply to surface water that applies to streams. Use the water as you wish on your own land but let it off where it naturally flows.

Mr. Witter: That would be impossible in a great many cases and would prevent men from using water on portions of their own land.

Mr. Bacon, offered the amendment that the committee be instructed to favor any legislation that in their judgment was for the greatest good to the greatest number of growers.

Mr. Witter offered an amendment that no law be passed with our consent that would effect present rights, vested or otherwise. The first being a simple negative of the former resolution and the latter only the former resolution differently expressed, the latter was withdrawn. The question as to whether cranberry improvements were or were not vested rights, was debated by attorneys Remington, Gaynor and Kruger without a satisfactory conclusion being reached. A vote was then taken on the resolution, by calling for

the ayes and noes, and the resolution was carried.

Mr. Nash. Gentlemen, I have just learned that I was appointed a member of that committee and I must object to acting on the committee under those instructions, I am neither in favor of or against any particular law, but do not wish to go to Madison to oppose any drainage law, good or bad.

After some discussion Mr. Gaynor moved to re-consider the vote on the resolution and amend it so it would read: That the committee appointed to keep a watchful eye on drainage legislation be instructed to oppose any changes in the present law that would be detrimental to cranberry interests.

Motion was lost.

It was moved by Mr. Kruschke that the committee be instructed to make a test case so we can see whether we have acquired vested rights or not.

Motion was lost.

Mr. Nash still objecting to serve on the committee, Mr. G. F. Witter, Jr. was appointed in his place.

Meeting then adjourned until 1:15 P. M.

AFTERNOON SESSION.

Called to order by President Braddock.

A vote was taken upon the place of holding the next annual meeting which was decided in favor of Grand Rapids. The place of holding the August Convention was left to the executive committee.

Mr. Gaynor, Chairman of committee on Cold Storage then reported what had been done, read letters from parties using cold storage rooms, giving a favorable report of them, also from an architect giving cost of building, and cost of plans, thought four

or five thousand dollars would erect a building to hold 20,000 barrels, and being near to sawdust would reduce the cost.

Messrs Bacon and Kruger thought it would be better to have the territory divided into districts and build smaller buildings and more of them. Also, that any good basement could be kept cool enough without ice at that season of the year.

Mr. Bennett: I investigated somewhat while in Chicago, and am satisfied that if kept at or near the freezing point, it will destroy the life of the berry. It will not decay any while kept in the building, but will do so very quickly after being removed, and would not be good to ship in large lots to the consumer, think that moderately cool even temperature, such as can be attained in any ordinary basement or thick walled building, by keeping the doors open during the cool nights and closed during the day, will be better than to keep them near the freezing point, and I move that J. A. Gaynor be appointed a committee to solicit subscriptions for stock for a suitable building to be built at Centralia, as an experiment. Motion was carried.

The World's Fair was discussed and it was resolved, that the Executive Committee be instructed to make arrangements for a proper representation at the World's Fair and that the Association pledges itself to furnish the necessary assistance to make it a success.

QUESTION OF BULKHEADS TAKEN UP.

Mr. R. C. Treat explained how he had constructed his stone bulkheads and stated that they were a success.

James Hiles showed how bulkheads were put in

on logging streams for flooding purposes and thought that such bulkheads would answer on the marsh.

Other members described their methods each claiming their mode the best.

The reservoir system was then discussed. Many growers favoring Mr. Bennett's plan as fully explained in the report of 1889 in preference to the open reservoir in common use.

The meeting then adjourned.

J. H. TREAT, Secretary.

CONSTITUTION AND BY-LAWS

—OF THE—

Wisconsin State Cranberry Growers' Ass'n,

As Amended to Date.

ARTICLE 1. This Association shall be known, as the Wisconsin State Cranberry Growers' Association.

ARTICLE 2. The objects of the Association shall be to advance the interests of all engaged in the cultivation of Cranberries in this State, by obtaining statistics and information of the condition of the crop in this and other States, from time to time, by establishing and taking measures to insure the use of uniform packages for marketing the fruit, so as to secure the confidence of dealers and purchasers by this evidence of fair and honorable dealing; to enlarge the area of the market for this fruit, through definite and direct action; and generally, by all legitimate and honorable means to advance the interests of the cranberry cultivator.

ARTICLE 3. The officers of the Association

shall be a President and Vice-President; a Secretary, (who shall also be Treasurer;) a Statistician and a Corresponding Secretary for each of the several cranberry growing sections represented in this convention, and an Executive Committee, composed of the President, Vice-President and Secretary, and two others chosen annually by the members. The duties of the President, Vice-President, and Secretary, shall be such as are usually implied in like offices in similar associations. The duties of the Corresponding Secretary shall be to gather the statistics of cranberry culture in his particular section, including the name and post office address of owner, amount of ground improved and in bearing condition, the age of such improvements and to report the probable crop in sight, on or before each annual convention in August, and to report at the annual meeting in January, the actual amount of shipments, prices obtained, as far as possible, and to make a weekly report to the Secretary, after the August meeting, until September 30th.

ARTICLE 4. The duty of the Statistician shall be to correspond with, and to receive and collect the information derived from the Corresponding Secretaries and other sources in and out of the State, for the use of the Association, and to report the same at the August and January meetings of each year.

ARTICLE 5. There shall be an annual meeting on the 2d Tuesday of January of each year, for the election of officers and the transaction of general business.

ARTICLE 6. There shall be held on the 2d Tuesday of August, annually, a convention to receive reports from the Statistician, and to adopt a scale of

prices for gathering the crop, so far as may seem practicable.

ARTICLE 7. The annual meetings, conventions and special meetings shall be held at such place as may be decided upon by the Executive Committee.

ARTICLE 8. Any person signing the Constitution and paying one dollar, may be admitted as a member, and the annual dues shall be one dollar.

ARTICLE 9. This Constitution may be amended at any annual meeting or convention, by a vote of two-thirds of the members present.

BY-LAWS.

1. The President shall preside at all meetings, and in his absence, the Vice-President.

2. It shall be the duty of each member to report to the Secretary the conditions of crops, whenever requested. Any member refusing or neglecting to so report may be suspended or expelled.

3. Any Company of growers may be represented by one or more of it's officers.

ORDER OF BUSINESS.

1. Reading of minutes.
2. President's Address.
3. Report of Statistician.
4. Report of Standing Committees.
5. Report of Special Committees.
6. Report of Treasurer.
7. Election of Officers.
8. Miscellaneous Business.

APPENDIX.

Proceedings of the meeting of the executive committee held at Grand Rapids, January 27th. Entire committee present.

In regard to frost warning service, it was decided to notify Mr. Kerkham that we heartily approve of the object of organization of which he is the head, and will gladly avail ourselves of the benefits of the service, and would suggest that our interests would be best served by the display of the cold wave flag from the trains passing through the cranberry regions and at the various stations in the district.

The following resolution was carried. Resolved that a committee of two be appointed to draft a bill to be presented to our state legislature, appropriating aid to our association, and to see to the passage of such bill, after ascertaining the amount appropriated to organizations of a similar character, also to see that provisions be made to represent the cranberry industry among our state industries at the coming World's Fair, at Chicago, and that we receive a proper share of the appropriation therefor.

A committee consisting of the President, Mr. W. S. Braddock and the Secretary J. H. Treat was then appointed. The meeting then adjourned.

J. H. TREAT, Secretary.

